# Chapter 3
# Considerations for Describing Affected Environment and Environmental Consequences

## 3.1 Introduction

Chapters 4 through 25 of this PDEIS are organized by environmental resource area. Each chapter discusses the affected environment and environmental consequences (short- and long-term impacts, direct and indirect impacts, and mitigation measures, and cumulative effects) of implementing the proposed comprehensive plans. Additional details about the affected environment are available for some resource areas in the technical reports; see the appendices to this PDEIS.

## 3.2 Chapter Contents and Definition of Terms

Chapters 4 through 25 are organized into the following resource and issue areas:

- **Chapter 4** – Geology, Geomorphology, Minerals, and Soils
- **Chapter 5** – Air Quality and Climate
- **Chapter 6** – Hydrology, Hydraulics, and Water Management
- **Chapter 7** – Water Quality
- **Chapter 8** – Noise and Vibration
- **Chapter 9** – Hazards and Hazardous Materials and Waste
- **Chapter 10** – Agriculture and Important Farmlands
- **Chapter 11** – Fisheries and Aquatic Ecosystems
- **Chapter 12** – Botanical Resources and Wetlands
- **Chapter 13** – Wildlife Resources
- **Chapter 14** – Cultural Resources
- **Chapter 15** – Indian Trust Assets
- **Chapter 16** – Socioeconomics, Population, and Housing

- **Chapter 17** – Land Use and Planning
- **Chapter 18** – Recreation and Public Access
- **Chapter 19** – Aesthetics and Visual Resources
- **Chapter 20** – Transportation and Traffic
- **Chapter 21** – Utilities and Service Systems
- **Chapter 22** – Public Services
- **Chapter 23** – Power and Energy
- **Chapter 24** – Environmental Justice
- **Chapter 25** – Wild and Scenic River Considerations for McCloud River

For some of these resource and issue areas, a technical report of the same name is presented in the appendices to this PDEIS. The technical reports describe the affected environment in more detail than the summarized information presented in the main body of this PDEIS.

### 3.2.1 NEPA Requirements

Council on Environmental Quality (CEQ) regulations for implementing NEPA include the following requirements for an Environmental Impact Statement (EIS) (Title 40, Section 1502.15 of the Code of Federal Regulations (40 CFR 1502.15)):

> *[An] EIS shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced.*

Because of uneven treatment of climate change under NEPA, the International Center for Technology Assessment, Natural Resources Defense Council, and Sierra Club filed a petition with CEQ in March 2008. The petition requested that climate change analyses be included in all Federal environmental review documents. In October 2009, President Barack Obama signed Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance." The goal of this executive order is "to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas (GHG) emissions a priority for Federal agencies" (FedCenter.gov 2011).

In response to the 2008 petition and subsequent Executive Order 13514, CEQ issued guidance on including GHG emissions and climate change impacts in environmental review documents under NEPA. CEQ guidance (issued February 18, 2010) suggests that Federal agencies consider opportunities to reduce GHG emissions caused by proposed Federal actions, adapt their actions to climate change impacts throughout the NEPA process, and address these issues in the agencies' NEPA procedures. Following are the two main factors to consider when addressing climate change in environmental documentation:

- Effects of a proposed action and alternative actions on GHG emissions
- Impacts of climate change on a proposed action or alternatives

CEQ notes that "significant" national policy decisions with "substantial" GHG impacts require analysis of their GHG effects. That is, the GHG effects of a Federal agency's proposed action must be analyzed if the action would cause "substantial" annual direct emissions; would implicate energy conservation or reduced energy use or GHG emissions; or would promote cleaner, more efficient renewable-energy technologies. Qualitative or quantitative information on GHG emissions that is useful and relevant to the decision should be used when deciding among alternatives.

CEQ suggests that if a proposed action would cause direct annual emissions of more than 25,000 metric tons of carbon dioxide equivalent, a quantitative and qualitative assessment may be meaningful to decision makers and the public. If annual direct emissions would be less than 25,000 metric tons of carbon dioxide equivalent, Federal agencies are encouraged to consider whether the action's long-term emissions should receive similar analysis.

### 3.2.2 Approach to Affected Environment

Chapters 4–25 provide an overview of the existing physical environment and socioeconomic conditions that the comprehensive plans could affect. This information was obtained from technical studies prepared by Reclamation for some resource and issue areas; those studies are attached to this PDEIS. Additional information was obtained from published environmental and planning documents, books, Web sites, journal articles, field surveys, and communications with technical experts. Descriptions of the affected environment are organized by geographic region. Conditions in the primary study area – Shasta Lake and vicinity and the upper Sacramento River (Shasta Dam to Red Bluff) – are described first. These discussions are followed by descriptions of conditions in the extended study area, which consists of the lower Sacramento River and Delta and CVP/SWP facilities and water service areas.

In certain resource areas, the geographic regions are organized slightly differently than how they are defined in Chapter 1. For example, when effects

are solely due to operational changes, the Trinity, American, and Feather rivers may all be discussed with the geography for CVP/SWP facilities and service areas, since the impacts would be similar in nature.

### 3.2.3 Methods and Assumptions

Chapters 4 through 25 analyze the direct and indirect effects of the No-Action Alternative and comprehensive plans (i.e., action alternatives) for each environmental resource area. Direct effects are those that would be caused by the action and would occur at the same time and place. Indirect effects are reasonably foreseeable consequences that may occur at a later time or at a distance from the project area. Examples of indirect effects are growth inducement or other effects related to changes in land use patterns, population density, or growth rate, and related effects on the physical environment.

The effects of the No-Action Alternative and action alternatives were determined by comparing estimates of resulting conditions with baseline conditions. These baseline conditions differ between NEPA and CEQA. Under NEPA, the No-Action Alternative (i.e., expected future conditions without the project) is the baseline to which the action alternatives are compared; the No-Action Alternative is also compared to existing conditions. Under CEQA, existing conditions are the baseline to which alternatives are compared.

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by, or result from, the proposed action. Under NEPA, the significance of an effect is a determining factor in whether an environmental impact statement must be prepared. An environmental document prepared to comply with CEQA must identify the significance of the environmental effects of a proposed project. As stated in State CEQA Guidelines, Section 15382, a "[s]ignificant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project."

#### *Rationale for Use of 2004 Biological Assessment for Water Operation Models*

In June 2004, Reclamation prepared the 2004 Operations Criteria and Plan (OCAP) to provide a baseline description of facilities and the operating environment of the CVP and SWP. Using operational information in the 2004 OCAP, Reclamation and DWR developed the 2004 OCAP Biological Assessment (BA), prepared as part of the consultation process required by Section 7 of the Endangered Species Act (ESA).

Planning assumptions and information on water operations used to develop alternatives for the SLWRI were developed in 2006, and reflect the coordinated CVP and SWP operational conditions and criteria described in the 2004 OCAP. In addition, the model package used to evaluate potential effects of the alternatives included in this PDEIS was based on operations described in the

2004 OCAP BA and the Coordinated Operations Agreement between Reclamation and DWR for the CVP and SWP, as ratified by Congress.

As Reclamation has proceeded with the SLWRI, essential environmental, hydrologic, and regulatory conditions in the Sacramento River basin and Delta have changed significantly, including substantial declines in key fish populations that use the Sacramento River basin waterways and Delta, such as the delta smelt and Chinook salmon.

Reclamation consulted with the NMFS and USFWS on the 2004 OCAP, and the two agencies issued the 2004 NMFS Biological Opinion (BO) (NMFS 2004) and 2005 USFWS BO (USFWS 2005), respectively. In 2007, the District Court for the Eastern District of California (District Court), in *Natural Resources Defense Council v. Kempthorne*, found the 2005 USFWS BO to be unlawful and inadequate. In May 2008, in *Pacific Coast Federation of Fishermen's Associations v. Gutierrez*, the District Court found the 2004 NMFS BO to be unlawful and inadequate. The District Court remanded both BOs to the fishery agencies.

In August 2008, Reclamation reinitiated consultation with the fishery agencies based on the 2008 *Biological Assessment on the Continued Long-Term Operations of the CVP and SWP* (2008 OCAP BA). USFWS issued the 2008 USFWS BO, finding that the long-term operations of the CVP and SWP, as described in the 2004 OCAP BA, would jeopardize the continued existence of the delta smelt (USFWS 2008). In June 2009, NMFS issued the 2009 NMFS BO (NMFS 2009) finding that the same operations would jeopardize populations of listed salmonids, steelhead, green sturgeon, and orcas. Because both agencies made jeopardy determinations, both agencies included a Reasonable and Prudent Alternative (RPA) in their BOs.

Several lawsuits were filed challenging the validity of the 2008 USFWS BO and 2009 NMFS BO and Reclamation's acceptance of the RPA included with each BO (*Consolidated Salmonid Cases, Delta Smelt Consolidated Cases*). On November 13, 2009, and March 5, 2010, the District Court concluded that Reclamation had violated NEPA by failing to perform any NEPA analysis before provisionally adopting the 2008 USFWS RPA and 2009 NMFS RPA. On December 14, 2010, the District Court found the 2008 USFWS BO to be unlawful and remanded the BO to USFWS. The District Court issued a similar ruling for the 2009 NMFS BO on September 20, 2011. On May 4, 2011, in the *Delta Smelt Consolidated Cases*, the District Court ordered USFWS to prepare a draft BO by October 1, 2011, which was subsequently extended to an unspecified date to be agreed upon by involved parties. Reclamation and USFWS must prepare a final BO and final NEPA document by November 1, 2013, and December 1, 2013, respectively.

The ongoing OCAP reconsultation process is not the only uncertainty facing future water operations in California. In addition to changes in regulatory conditions, California experienced a severe drought from 2007 through 2009. Although the 2010–2011 water year brought water supplies to normal levels, California's complex water supply issues remain. Increased water needs for environmental purposes, regulatory cutbacks on water supplies, and population growth have created more serious water problems than the State faced in the early 1990s drought. In the future, impacts of climate change will further complicate California's water supply difficulties. In response to these issues, plans have been proposed to update California's water system by increasing storage, improving conveyance, protecting the Delta's ecosystem and promoting greater water conservation, and planning assumptions originally used to predict hydrologic conditions in the Sacramento River and Delta have changed.

Reclamation and DWR use CalSim-II to study operations, benefits, and effects of new facilities and operational parameters for the CVP and SWP. A set of operational assumptions was developed in 2006 based on operations described in the 2004 OCAP BA and the Coordinated Operations Agreement between Reclamation and DWR for the CVP and SWP. These assumptions were used to guide development, modeling, and evaluation of potential effects of the No-Action Alternative and action alternatives included in this PDEIS. These existing evaluations were used as the basis of analysis in the PDEIS.

The legal challenges and changing environmental conditions result in uncertainty with regard to both current and future operations. These operational uncertainties are likely to continue, and current and future water operation conditions may be different because operational constraints governing water operations are likely to change with release of revised USFWS and NMFS BOs. The existing SLWRI modeling analysis is being used for comparison purposes, and reflects expected variation among the alternatives, including the type and relative magnitude of anticipated impacts and benefits. Because of the lingering uncertainty about future water operations, the PDEIS is based on existing studies.

Modeling studies will be updated to reflect changes in water operations resulting from ongoing OCAP reconsultation and other relevant water resources projects and programs, including, potentially, Bay-Delta Conservation Plan (BDCP)/Delta Habitat Conservation and Conveyance Plan (DHCCP) efforts. The results of these updated studies will be incorporated into the Draft EIS and other future SLWRI documents.

### 3.2.4 Significance Criteria

Significance criteria for each resource area are provided in each resource chapter of this PDEIS. These criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of Federal, State, and local agencies. These

criteria also encompass the factors taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects.

### 3.2.5 Impact Comparisons and Definitions

Mechanisms that could cause impacts are discussed for each issue area. General categories of impact mechanisms are construction and activities related to future operation and maintenance, as described in Chapter 2, "Alternatives." Project-related impacts are categorized as follows, to describe the intensity or duration of the impact:

- A **temporary** impact would last less than 3 to 4 years and typically would occur only during construction.
- A **short-term** impact could occur during construction and could last from the time construction ceases to within 3 to 5 years after construction.
- A **long-term** impact would last longer than 5 years after the completion of construction. In some cases, a long-term impact could be a permanent impact.
- A **direct** impact is an impact that would be caused by an action and would occur at the same time and place as the action.
- An **indirect** impact is an impact that would be caused by an action but would occur later in time or at another location, yet is reasonably foreseeable in the future.
- A **cumulative** impact is a project's impacts combined with impacts from other past, present, and reasonably foreseeable future projects. A project's incremental impacts are not "cumulatively considerable" solely because other projects would have a significant cumulative impact; rather, the project would also need to contribute considerably to a significant cumulative impact (State CEQA Guidelines, Section 15064(h)(1)).

### 3.2.6 Impact Levels

The terminology listed below is used to denote the significance of environmental impacts of the No-Action Alternative and action alternatives. These levels of significance are listed for purposes of CEQA only.

- **No impact** would occur if the construction, operation, and maintenance of the alternative under consideration would not have any direct or indirect effects on the environment. "No impact" means no change from existing conditions. This impact level does not need mitigation.

- An impact that would not result in a substantial and adverse change in the environment would be **less than significant**. This impact level does not require mitigation under CEQA, even if applicable measures are available.

- A **significant** impact is defined by Section 21068 of the California Public Resources Code as "a substantial, or potentially substantial, adverse change in the environment." Levels of significance can vary by project, based on the change in the existing physical condition. This PDEIS uses the CEQA definition of "significant impact."

- A **potentially significant** impact is one that, if it were to occur, would be considered a significant impact as described above; however, the occurrence of the impact cannot be immediately determined with certainty. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Therefore, under CEQA, feasible mitigation measures or alternatives to the proposed action must be identified, where applicable, to reduce the magnitude of potentially significant impacts.

- A **significant and unavoidable** impact is a substantial or potentially substantial adverse effect on the environment that cannot be reduced to a less-than-significant level even with any feasible mitigation. Under CEQA, a project with significant and unavoidable impacts could proceed, but the lead agency would be required to do the following:

    - Conclude in findings that there are no feasible means of substantially lessening or avoiding the significant impact in accordance with Section 15091(a)(3) of the State CEQA Guidelines (i.e., Title 14, Section 15091(a)(3) of the California Code of Regulations (CCR)).

    - Prepare a statement of overriding considerations, in accordance with Section 15093 of the State CEQA Guidelines, explaining why the lead agency would proceed with a project in spite of the potential for significant impacts.

- A **significant cumulative** impact occurs when the project would make a "cumulatively considerable incremental contribution" to an overall significant cumulative impact. If an overall cumulative impact would not be significant, even when the project would make a cumulatively considerable incremental contribution to the cumulative impact, then it is determined that the project would not cause a significant cumulative impact.

- A **beneficial** impact is a positive change or improvement in the environment and for which no mitigation measures are required.

- An impact may have a level of significance that is too uncertain to be reasonably determined. Such an impact would be designated **too speculative for meaningful evaluation**, in accordance with Section 15145 of the State CEQA Guidelines. Where some degree of evidence points to the reasonable potential for a significant effect, the EIS may explain that a determination of significance is uncertain, but is still assumed to be "potentially significant," as described above. In other circumstances, after thorough investigation, the determination of significance may still be too speculative to be meaningful. This is an effect for which the degree of significance cannot be determined for specific reasons. For example, aspects of the impact itself may be unpredictable or the severity of consequences cannot be known at this time.

### 3.2.7 Mitigation Development Process and Objectives

Mitigation measures are presented where feasible to avoid, minimize, rectify, reduce, or compensate for significant and potentially significant impacts of the proposed action and alternatives, in accordance with Section 15126.4 of the State CEQA Guidelines and NEPA regulations (40 CFR 1508.20). Each mitigation measure is identified numerically to correspond with the number of the impact being mitigated by the measure. No mitigation measures are needed when an impact is determined to be "less than significant" or "beneficial," or where no impact would occur. Where sufficient feasible mitigation is not available to reduce an impact to a less-than-significant level, the impact is identified as "significant and unavoidable."

### 3.2.8 Significance after Mitigation

For every impact that would be significant or potentially significant, feasible mitigation is applied to avoid or reduce the impact to a less-than-significant level and one of two conclusions is reached:

1. The mitigation would reduce the impact to a less-than-significant level.

2. No feasible mitigation exists to reduce the impact to a less-than-significant level, and thus the impact would be significant and unavoidable.

Impact significance is reevaluated after application of mitigation in this PDEIS.

### 3.2.9 Cumulative Effects

This section provides an analysis of overall cumulative effects of the project alternatives and the No-Action Alternative, determined by combining project impacts with other past, present, and reasonably foreseeable probable future

projects producing related impacts (as defined above). This analysis follows applicable guidance provided by CEQ in *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997) and *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ 2005).

### *Definitions of Cumulative Effects*

The CEQ regulations that implement NEPA provisions define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions over time and differ from indirect impacts (40 CFR 1508.8). They are caused by the incremental increase in total environmental effects when the evaluated project is added to other past, present, and reasonably foreseeable future actions. Cumulative effects can thus arise from causes that are totally unrelated to the project being evaluated, and the analysis of cumulative effects looks at the life cycle of the effects, not the project at issue. These effects can be either adverse or beneficial.

Cumulative impacts are defined in the State CEQA Guidelines (14 CCR Section 15355) as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (14 CCR Section 15355(b)).

Consistent with the State CEQA Guidelines (14 CCR Section 15130(a)), the discussion of cumulative impacts in this chapter focuses on significant and potentially significant cumulative impacts. The State CEQA Guidelines (14 CCR Section 15130(b)) state that:

> *The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.*

### *Effects of Project Implementation with Climate Change*

Each resource area evaluates the effects of SLWRI actions combined with predicted effects of climate change. The ways SLWRI could affect GHG production are included in Chapter 5, "Air Quality and Climate." The Climate Change Projection Appendix provides a summary of global climate forecasts and a discussion of climate change implications for California water resources, particularly those of Shasta Lake, including predictions about changes in monthly and annual natural runoff, reservoir storage and temperature, flood management, power generation, fish conservation, and water supply and quality. The discussion of climate change implications provided in the Climate Change Projection Appendix provides context for consideration of cumulative conditions.

### *Relationship to CALFED Programmatic Cumulative Effects Analysis*

This analysis of cumulative effects in this PDEIS considers but does not tier from the cumulative impacts assessment in the CALFED Programmatic Environmental Impact Statement/Environmental Impact Report (EIR) (CALFED 2000a). The "Shasta Lake Enlargement" project was included in the cumulative impacts analysis of the CALFED Programmatic EIS/EIR as a project in CALFED's Storage Program (CALFED 2000a). This project-specific analysis considers, but stands alone from and refines, the analysis of cumulative effects in the CALFED Programmatic EIS/EIR (CALFED 2000a). This analysis focuses on issues resulting from the effects of this project combined with other reasonably foreseeable projects. This PDEIS considers CALFED projects that have been implemented, are being implemented, or are reasonably foreseeable future projects. The projects that have been implemented are considered as part of existing conditions; reasonably foreseeable future projects are considered as part of future conditions.

### *Methods and Assumptions*

Following CEQ guidance, Reclamation has identified associated actions (past, present, or future) that, when viewed with the proposed or alternative actions, may have significant cumulative impacts. Table 3-1 lists the plans, projects, and programs that were considered for each resource area. Cumulative impacts should not be speculative; rather, they should be based on known long-range plans, regulations, or operating agreements.

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Forecasted 2030 Water Supply Demand | | | × | | | | | × | × | × | | | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |
| Delta-Mendota Canal Intertie | | | × | | | | | × | × | × | × | × | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |
| Sacramento Valley Water Management—Phase 8 Short-Term Agreement | | | × | | | | | × | × | × | | | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |
| San Joaquin River Salinity Management Plan | | | × | × | | | | × | × | × | | | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |
| South Bay Aqueduct Enlargement Project | | | × | | | | | × | × | × | × | × | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Integration of CVP and SWP Operations | | | × | | | | | × | × | × | | | | | × | | | | | × | | | Considered in quantitative assessment of actions related to water resources |
| Red Bluff Diversion Dam Pumping Plant | × | | × | | | | | | × | | × | × | | | | | | | | × | | | |
| North-of-Delta Offstream Storage Investigation | × | | × | × | × | × | × | × | × | × | × | × | | | × | | | | | × | | | |
| Folsom Dam Raise Project | × | | × | | | | | × | × | × | × | × | | | × | | | | | × | | | |
| Bay Delta Conservation Plan | × | | × | | | | | | × | | × | × | | | | | | | | × | | | |
| Franks Tract Project | × | | × | × | | | | | × | | × | | | | | | | | | × | | | |
| In-Delta Storage Program (Delta Wetlands Project) | × | | × | | | | | × | × | × | × | × | | | × | | | | | × | | | |
| Los Vaqueros Reservoir Expansion Project | × | | × | × | | | | × | × | × | × | × | | | × | | | | | × | | | |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Delta Improvements Program | × | | × | | | | | × | × | × | × | | | | × | | | | | | | | |
| Central Valley Flood Protection Plan | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | | × | | |
| Trinity River Mainstream Fishery Restoration Program | × | | × | × | | | | × | × | × | × | × | | | × | | | | | | | | |
| Central Valley Project Improvement Act | × | × | × | × | | | | × | × | × | × | × | | | × | × | | | | | × | | |
| CALFED Ecosystem Restoration Program | | | | | | | | × | × | × | × | | | | × | | | | | | | | |
| Environmental Water Account | | | × | × | | | | × | × | | | | | | | | | | | | | | |
| San Luis Reservoir Low Point Improvement Project | | | × | × | | | × | × | × | × | × | | | | | | | | | | | | |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B.F. Sisk Dam Corrective Action Project | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | | | | |
| Shasta-Trinity National Forest Land and Resource Management Plan | × | | × | × | | | | × | × | × | × | × | | × | × | × | × | × | × | | | | |
| Iron Mountain Mine Restoration Plan | × | × | × | × | × | × | | × | × | × | | | | | × | | × | × | × | | | | |
| Mendocino National Forest Land and Resource Management Plan | × | | × | × | | | | × | × | × | × | × | | × | | × | × | × | × | | | | |
| Sacramento River Conservation Area Forum Program | | | × | × | | | × | × | × | × | | | | | | | | | | | | | |
| U.S. Bureau of Land Management Redding Resource Management Plan | × | | × | × | | | | × | × | × | × | × | | × | × | × | × | × | × | | | × | |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sacramento River National Wildlife Refuge Draft Comprehensive Conservation Plan | | | | | | | X | X | X | X | | | | | X | | | | | | | | |
| Comprehensive Management Plan for the Sacramento River Wildlife Area | | | | | | | X | X | X | X | | | | | X | | | | | | | | |
| North Delta Flood Control and Ecosystem Restoration Project | | | | | | | X | X | X | | X | | | | | | | | | | | | |
| California Department of Water Resources Levee Repair | | | X | | | | X | X | X | | X | | X | | | | | | | | | | |
| CALFED Levee System Integrity Program | | | X | | | | X | X | X | | X | | | | | | | | | | | | |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natomas Levee Improvement Program Landside Improvement Project | | | × | | | | × | × | × | | × | | | × | | | | | | | × | | |
| West Sacramento Levee Improvement Program | | | × | | | | × | × | × | | × | | | × | | | | | | | × | | |
| General Plans for Shasta and Tehama Counties | | × | | | × | | | | | | × | | | | | | × | | | | | | |
| City of Shasta Lake General Plan | | × | | | × | | | | | | × | | | | | | × | | | | | | |
| City of Redding General Plan | | × | | | × | | | | | | × | | | | | | × | | | | | | |
| City of Anderson General Plan | | × | | | × | | | | | | × | | | | | | × | | | | | | |
| City of Red Bluff General Plan | | × | | | × | | | | | | × | | | | | | × | | | | | | |

**Table 3-1. Present and Reasonably Foreseeable Future Actions Included in the Qualitative Analysis of Cumulative Impacts, by Resource Area (contd.)**

| Actions | Geology, Geomorphology, Minerals, and Soils | Air Quality and Climate | Hydrology, Hydraulics, and Water Management | Water Quality | Noise and Vibration | Hazards and Hazardous Materials and Waste | Agriculture and Important Farmlands | Fisheries and Aquatic Ecosystems | Botanical Resources and Wetlands | Wildlife Resources | Cultural Resources | Indian Trust Assets | Socioeconomics, Population, and Housing | Land Use and Planning | Recreation and Public Access | Aesthetics and Visual Resources | Transportation and Traffic | Utilities and Service Systems | Public Services | Power and Energy | Environmental Justice | Wild and Scenic River Considerations for McCloud River | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antlers Bridge Replacement | | X | | | | | X | X | X | | X | | X | | X | | | | | | | | |
| Stillwater Business Park | | X | | | X | | X | X | X | | X | | X | | X | | X | | | | | | |
| Shasta Metro Enterprise Zone Program | | X | | | | | X | X | X | | | | X | | | | | | | | | | |

Key:
CALFED = CALFED Bay-Delta Program
CVP = Central Valley Project
SWP = State Water Project

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: using a list of past, present, and probable future projects (the "list approach") or using adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). For this analysis of cumulative effects, the list approach and the plan approach have been combined in quantitative and qualitative assessments to generate the most comprehensive future projections possible. The methodology for each of these assessments is described below.

**Quantitative Assessments** Quantitative assessments were completed for each of the resource areas in this PDEIS, where feasible. The effects of actions related to water resources and effects of development projects were assessed quantitatively. The methodologies for these quantitative assessments are described below.

*Quantitative Assessment of Actions Related to Water Resources* In this PDEIS, the quantitative assessment of actions related to water resources relied primarily on CalSim-II modeling of hydrologic conditions that could affect vegetation and habitat types or special-status plant species. The model was run using two different baselines: modeling runs of "existing conditions," based on 2005 facilities and demands (a 2005 baseline); and modeling runs of "future conditions," based on forecasted 2030 demands and reasonably foreseeable projects and facilities (a 2030 baseline). The 2030 baseline does not account for potential changes in water demands resulting from the effects of climate change. Potential changes in water demand are described qualitatively in the "Qualitative Assessment of Other Actions" section. In this modeling of the 2030 baseline, reasonably foreseeable projects and facilities were as follows:

- Forecasted 2030 level of demands for water supplies
- Delta-Mendota Canal Intertie Project
- Sacramento Valley Water Management – Phase 8 Short-Term Agreement regarding water transfer supplies
- San Joaquin River Salinity Management Plan
- South Bay Aqueduct Enlargement Project
- Integration of CVP and SWP Operations

*Forecasted 2030 Level of Demands for Water Supplies* A detailed description of the CalSim-II model, the modeling methodology used in evaluations, and key assumptions (including a description of forecasted 2030 facilities and demands) are provided in the Modeling Appendix. The analysis and modeling results are summarized in the Hydrology, Hydraulics, and Water Management Technical Report. Moreover, Reclamation and DWR have developed "common assumptions" – reasonable assumptions built into the

CalSim-II model that are the standard for evaluating systemwide hydrologic and water supply conditions under existing and future conditions.

Cumulative effects on hydrologic conditions were quantified by comparing modeling runs with No-Action Alternative (2030) conditions to modeling runs with the 2005 baseline. For example, the No-Action Alternative (2030) was compared to existing conditions (the 2005 baseline) to identify the cumulative effects of reasonably foreseeable projects and facilities on hydrologic conditions. Similarly, project alternatives were compared to existing conditions (thus satisfying CEQA requirements) and to the No-Action Alternative (2030) (satisfying NEPA requirements) to identify the combined cumulative effect of project alternatives and other foreseeable projects and facilities. Forecasted year-2030 demands for water were used in the CalSim-II model runs for this PDEIS and are considered to be reasonably foreseeable for determining cumulative impacts, as are all projects included as "common assumptions."

*Delta-Mendota Canal Intertie* The Delta-Mendota Canal Intertie Project involves constructing and operating a pumping plant and a pipeline connecting the Delta-Mendota Canal with the California Aqueduct in the Delta (extended study area), in accordance with the OCAP. The intertie would be used to meet current water supply demands, allow for maintenance and repair of the CVP Delta export and conveyance facilities, and provide operational flexibility for responding to CVP- or SWP-related emergencies. The intertie would include a 450-cubic-foot-per-second (cfs) pumping plant at the Delta-Mendota Canal that would allow water to be pumped from the canal to the California Aqueduct via an underground pipeline. Reclamation and DWR have completed NEPA and CEQA documentation for this project. The notice of intent/notice of preparation (NOI/NOP) was released in 2006, public scoping meetings were held in August 2006, and the DEIS/EIR was released for public comment in July 2009. The FEIS/EIR and ROD were filed in December 2009 and construction began in October 2010.

*Sacramento Valley Water Management—Phase 8 Short-Term Agreement* The Phase 8 Short-Term Agreement is a commitment by Reclamation and DWR to meet the flow-related standards of State Water Resources Control Board (SWRCB) Water Right Decision 1641 (DWR 2002). The agreement provides for collaboration among interested parties to develop projects to meet water supply, water quality, and environmental needs in the Sacramento Valley and Bay-Delta areas, and throughout California. The parties to the Phase 8 Short-Term Agreement are more than 40 water suppliers in the Sacramento Valley, DWR, Reclamation, and downstream water users. These parties developed a cooperative water management partnership to better manage water and provide a mechanism for satisfying Bay-Delta water quality and flow objectives. The actions in the agreement consist of locally proposed groundwater projects, reservoir reoperation, system improvements, and surface water and groundwater planning studies. These short-term projects and actions

would be implemented for 10 years in Shasta, Butte, Sutter, Glenn, Tehama, Colusa, Sacramento, Placer, and Yolo counties.

The Phase 8 Short-Term Agreement was signed in December 2002 and the NOI/NOP was published in August 2003.

*San Joaquin River Salinity Management Plan* This plan outlines actions used for water quality management to improve salt and boron conditions on the lower San Joaquin River. Developed in conjunction with the management agency agreement between Reclamation and the Central Valley Regional Water Quality Control Board, the plan describes current actions and proposed mitigation. The plan focuses on three major groups of actions taken by Reclamation:

- Providing flows to the system
- Reducing salt load to the river
- Facilitating mitigation

Actions to reduce salt loads include the Grassland Bypass Project, which is designed to improve water quality in the channels used to deliver water to wetland areas and the San Joaquin River. Before the Grassland Bypass Project was implemented, drainage water from farms in the 97,000-acre Grassland Drainage Area was discharged into the San Joaquin River through Salt Slough and other channels used to deliver water to wetland areas. This drainage water contains high concentrations of selenium, salts, boron, and other constituents that are harmful to wildlife.

*South Bay Aqueduct Enlargement Project* The South Bay Aqueduct conveys water from the Delta through more than 40 miles of pipelines and canals to the Zone 7, Alameda County, and Santa Clara Valley water districts. Those water districts, in turn, serve the cities of Livermore, Dublin, Pleasanton, San Ramon, Fremont, Newark, Union City, Milpitas, Santa Clara, and San Jose. The first conveyance facility constructed for the SWP, the South Bay Aqueduct was designed for a capacity of 300 cfs. Recent flow tests and studies have shown that the actual capacity is 270 cfs.

The purpose of the South Bay Aqueduct Enlargement Project is to increase the aqueduct's capacity to 430 cfs to meet Zone 7 Water Agency's future needs and provide operational flexibility to reduce the SWP's peak power consumption.

The following are the principal features of this project:

- Add four 45-cfs pumps to the South Bay Pumping Plant, and expand the existing plant structure and add a new service bay and switchyard

- Construct a third (Stage 3) Brushy Creek pipeline and surge tank parallel to the existing two barrels

- Construct a 500-acre-foot reservoir (425 acre-feet of active storage) to be served by the Stage 3 Brushy Creek Pipeline

- Raise the height of the canal embankments, canal lining, and canal overcrossing structures and bridges along the Dyer, Livermore, and Alameda canals and at the Patterson Reservoir

- Modify check structures and siphons along the Dyer, Livermore, and Alameda canals

- Construct new drainage overcrossing structures to eliminate drainage into the canals

Construction is proceeding on enlargement of the South Bay Pumping Plant to make room for the four new pump units being fabricated (DWR 2011a). Project completion is expected in 2012.

*Integration of CVP and SWP Operations* For many years, Reclamation and DWR have attempted to increase coordination and integration of CVP and SWP operations. Such coordination allows one project to use the other's resources to improve water supply reliability and reduce costs. Reclamation and DWR plan to integrate the strengths of the CVP and SWP (storage and conveyance, respectively) to maximize water supplies for the benefit of both CVP and SWP contractors that rely on water delivered from the Bay-Delta. The agencies will ensure that such integration will not impair in-Delta uses and will be consistent with fishery, water quality, and other flow and operational requirements of the Clean Water Act (CWA) and the Federal and California endangered species acts. The project agencies have agreed to pursue the following actions:

- *Convey water for Reclamation at the SWP* Upon implementation of the increase to 8,500 cfs at the Harvey O. Banks Pumping Plant (Banks), DWR will divert and pump 100 thousand acre-feet (TAF) of Reclamation's Level 2 refuge water before September 1. This commitment will allow Reclamation to commit up to 100 TAF of conveyance capacity at the C.W. "Bill" Jones (formerly Tracy) Pumping Plant, previously reserved for wheeling refuge supplies, for CVP supplies.

- *Adjust in-basin obligations* Upon implementation of the increase to 8,500 cfs at Banks, Reclamation will supply up to 75 TAF from its upstream reservoirs to alleviate a portion of the SWP's in-basin obligation.

- *Provide extra conveyance and storage* Before the increase to 8,500 cfs at Banks, DWR will provide up to 50 TAF for pumping and conveyance of Reclamation's Level 2 refuge water. Likewise, Reclamation will supply up to 37,500 acre-feet from its upstream storage to alleviate a portion of the SWP's obligation to meet in-basin uses. The biological effects analyzed in this PDEIS are for the full 100 TAF of conveyance and up to 75 TAF of storage, as may occur when the 8,500 cfs at Banks is operational. The biological effects of the 50 TAF of conveyance and up to 37,500 acre-feet of storage that may occur at the existing permitted Banks capacity are not analyzed separately; it is assumed that those effects are encompassed by the analysis of the larger amounts and capacities that may occur when the 8,500 cfs at Banks is operational.

- *Coordinate operation of upstream reservoirs* Under certain limited hydrologic and storage conditions, when water supply is relatively high in Shasta Lake yet relatively low in Lake Oroville, the SWP may rely on Shasta storage to support February allocations based on 90-percent-exceedence projections. When the CVP's and SWP's February 90-percent-exceedence forecasts project that CVP storage in Shasta Lake will be greater than approximately 2.4 million acre-feet and SWP storage in Lake Oroville on September 30 will be less than 1.5 million acre-feet, the SWP may rely on Shasta Lake water to provide allocations. The following conditions apply:

    - Should the actual hydrology be drier than the February 90-percent-exceedence forecast, the SWP may borrow Shasta Lake water equal to the amount needed to maintain the allocation made under the 80-percent-exceedence forecast, not to exceed 200 TAF.

    - Borrowing of stored water will be requested by April 1. Reclamation and DWR will develop a plan within 15 days of the date of the request to determine the potential amount of water to be borrowed. The plan will identify the amounts, timing, and any limitation or risk to implementation and will comply with conditions on Shasta Lake and Sacramento River operations imposed by applicable BOs. Water borrowed by the SWP will be provided by making adjustments to the accounting of responsibilities in Article 6 of the Coordinated Operations Agreement.

- *Maximize use of San Luis Reservoir storage* DWR, in coordination with Reclamation and their respective contractors, will develop an annual contingency plan to ensure that storage in San Luis Reservoir remains adequate to avoid water quality problems for CVP contractors diverting directly from the reservoir. The plan will identify actions and triggers to provide up to 200 TAF of source shifting, allowing

Reclamation to use the CVP share of San Luis Reservoir more effectively to increase CVP allocations.

Additionally, a solution to the San Luis Reservoir low-point problem is in the long-term operation of the CVP and SWP and is part of this consultation. The CALFED ROD (August 28, 2000) identified solving the low-point problem in San Luis Reservoir as a complementary action that would avoid water quality problems associated with the low point and increase the effective storage capacity in San Luis Reservoir up to 200 TAF. This action, though not implemented at present, is part of the future proposed action on which Reclamation is consulting. All site-specific and localized actions related to implementing a solution to the San Luis Reservoir low-point problem, such as constructing physical facilities in or around San Luis Reservoir and any other site-specific effects, will be addressed in a separate consultation.

*Quantitative Assessment of Effects on Air Quality* For this cumulative effects analysis, regional impacts on air quality have been addressed through a quantitative analysis using the plan approach. As described in Chapter 5, "Air Quality and Climate," significance thresholds for the Shasta County Air Quality Management District (SCAQMD) are defined in the Shasta County General Plan. Analysis of local cumulative impacts is based on both the plan approach, which defines impact thresholds, and the list approach, which identifies projects that may emit pollutants in the same area as the proposed action. SCAQMD standards for criteria pollutants have been established to limit the emissions of individual projects when considering the cumulative effect of all projects on regional pollutant concentrations. Therefore, a significant direct project impact would also be a significant cumulative impact.

The URBEMIS2007 emissions model was used to estimate emissions of pollutants from construction activities. Among the inputs to the model for construction analysis were the types and quantities of construction equipment to be used, along with the hours of use; areas of land to be graded; number of truck trips and trip distances for export of spoils and import of materials; volumes of buildings to be demolished; areas of buildings to be built; and areas of land to be paved. For postconstruction activities, principal inputs were the number of vehicle trips and average trip distances. The methods and results of this analysis are described in greater detail in Chapter 5, "Air Quality and Climate."

**Qualitative Assessment of Other Actions** Past, present, and reasonably foreseeable future actions were also assessed qualitatively. Information on current and historical conditions was used to evaluate combined effects of past actions on botanical resources. For present and reasonably foreseeable future actions, a list of related actions was compiled. The combined effects of past, present, and reasonably foreseeable future actions were then evaluated with effects of the project. The combined effects of past actions and the list of related present and reasonably foreseeable future projects are described further below.

*Past Actions* A large number of past actions have occurred in the study area. These past actions have strongly influenced existing conditions, and some past actions created "legacies" that are still affecting resources. Among the legacies are the sediment released by hydraulic mining and the metal contamination that is still being generated by abandoned mines. The following are the most important of these past actions:

- Population growth and associated development of socioeconomic resources and infrastructure
- Conversion of natural vegetation to agricultural and developed land uses
- Introduction of nonnative plant and animal species
- Resource extraction (e.g., mining, grazing, and timber harvests)
- Water development actions, particularly the construction and operation of Shasta Dam, the rest of the CVP, and the SWP

*Present and Reasonably Foreseeable Future Actions* Present projects and reasonably foreseeable (probable) future projects are those projects that are currently under construction, approved for construction, or in final stages of formal planning.

The present or reasonably foreseeable (probable) future actions considered in this cumulative effects analysis are those actions located within the primary or extended study area that have been identified as potentially affecting resources that also may be affected by the SLWRI. These actions were identified by compiling and then reviewing a preliminary list of actions. A preliminary list of actions was compiled by reviewing available information regarding planned projects (including agency Web sites). Actions were then reviewed for inclusion in the cumulative effects analysis based on three criteria:

- The action has an identified sponsor actively pursuing project development; the sponsor has completed or issued NEPA and/or CEQA compliance documents such as a DEIS or DEIR; and the action appears to be "reasonably foreseeable," given other considerations such as public and stakeholder controversy.
- Available information defines the action in sufficient detail to allow meaningful analysis.
- The action could affect resources potentially affected by the SLWRI.

Any action that could affect resources potentially affected by the SLWRI and was under construction was considered "reasonably foreseeable."

Based on this review, the effects of the following actions were qualitatively considered in the assessment of cumulative effects of the SLWRI. This list is organized into four categories of actions: water resources, resource management and restoration, levee, and development actions. Some unknown subset of the following projects, while not strictly meeting the criteria above, would likely be implemented: the *Bay Delta Conservation Plan* (and associated alternative Delta conveyance facilities), the North-of-Delta Offstream Storage Facility (Sites Reservoir), the Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir), and the South Delta Improvements Program. It would be speculative to consider these projects at any more than a conceptual basis because these projects and their effects are not defined in sufficient detail to allow meaningful analysis.

*Water Resources Actions* In addition to the water resources actions described above in the section "Quantitative Assessment of Actions Related to Water Resources," the water resources–related actions described below were identified as reasonably foreseeable.

*Red Bluff Diversion Dam Pumping Plant* In 2002 and again in 2006, Reclamation circulated a DEIS/EIR that analyzed various options for improving fish passage at Red Bluff Diversion Dam (RBDD) and requested public comments. Shortly after the 2006 release of the DEIS/EIR, Reclamation stated that Alternative 2B, featuring construction of a new pumping plant and operation of the RBDD gates in the out position for approximately 10 months of the year, was its Preferred Alternative (72 *Federal Register* 4292, January 30, 2007). Reclamation subsequently prepared an FEIS/EIR and ROD calling for a pumping plant to be constructed upstream from the dam to improve the ability to divert water into the Tehama-Colusa Canal when gravity diversion is not possible because the RBDD gates are out. Reclamation completed consultations with the USFWS and NMFS under Section 7 of the Federal ESA regarding construction of the new plant. The new pumping plant would be capable of operating throughout the year, providing water diversions for Tehama-Colusa Canal Authority customers.

Green sturgeon spawn upstream from RBDD; most upstream and downstream migration by adults occurs before July and after August. Once the new pumping plant has been constructed and is operational, RBDD would cease operations with the gates permanently open to improve passage by adult green sturgeon and other spawning fish.

The pumping plant project will occur in three phases. The first, completion of the NEPA/CEQA process, has already been accomplished. The design and permitting phase is commencing, subject to the availability of funding, and is anticipated to take about 18 months. As funding permits, property acquisition will also occur during this phase, and further funding commitments will be secured during this time. The final phase, facilities construction, is anticipated

to take approximately 18 months, but this timeline will be updated during final design and permitting.

*North-of-Delta Offstream Storage Investigation* The North-of-Delta Offstream Storage Investigation is a feasibility study being performed by Reclamation and DWR, in partnership with local interests and pursuant to the ROD for the CALFED Programmatic EIS/EIR (DWR 2011b). This study is evaluating potential projects for offstream storage of surface water at Sites Reservoir in the upper Sacramento River Basin. Such storage could increase water supply reliability for all beneficial uses (agricultural, urban, and environmental).

The Sites Reservoir Project could contribute to cumulative effects on water supplies and associated resources. The project could increase water supplies available for export in years when export supplies otherwise would be limited. This project also could modify the timing and magnitude of upstream reservoir releases in wet years.

An NOI/NOP for this project was issued in November 2001 and public scoping for the environmental document occurred in January 2002. The complete plan formulation report was published in September 2008 and the EIS/EIR is scheduled to be completed by December 2011.

*Folsom Dam Raise Project* USACE, sponsored by the Sacramento Area Flood Control Agency (SAFCA) and the Central Valley Flood Protection Board, is responsible for the Folsom Dam Raise Project in the CVP service area on the American River. This project will raise Folsom Dam 7 feet to reduce the Sacramento area's flood risks. The Folsom Dam Raise Project involves raising Folsom Dam and the related dikes/auxiliary dam, modifying L. L. Anderson Dam, constructing a bridge downstream from Folsom Dam, completing temperature shutter modifications, and restoring the area's ecosystem (USACE et al. 2009). Construction on the dam raise began in December 2007 and is expected to be completed in 2015.

*Bay Delta Conservation Plan (and Alternative Delta Conveyance Facilities)* Four broad concepts have been studied to address urban water quality, water supply reliability, and environmental concerns in the Delta: physical barriers, hydraulic barriers, through-Delta facilities, and isolated facilities. During the last 50 years, a variety of proposals modifying or combining all these concepts have been suggested to improve Delta conditions and allow for beneficial use of Delta water supplies. The *Bay Delta Conservation Plan* is currently being developed. Several alternative Delta conveyance facilities are being evaluated as part of the plan. Among these alternatives is an isolated facility that would convey water around the Delta for local supply and export through a hydraulically isolated channel.

An isolated facility similar to that currently proposed in the *Bay Delta Conservation Plan* was proposed previously, formulated in a plan proposed by the Interagency Delta Committee in 1965 as the Peripheral Canal. A statute that would have authorized this and many other additions to the SWP was rejected by California voters in 1982. That proposal consisted of constructing an isolated canal from near Hood on the Sacramento River to Clifton Court Forebay (with a fish screen near Hood), siphons, and the capability to release water to Delta channels to improve water circulation in Delta channels.

An isolated facility that would convey water around the Delta could improve water quality for urban and agricultural water users; the facility would also eliminate reverse flow in the Delta and improve Delta water quality and flow by releasing water to south Delta channels. Because the intake gate for this facility would be upstream from much of the Delta along the Sacramento River, it would substantially reduce impacts of bromide and agricultural drainage on water delivered to urban water purveyors.

Possible collateral measures to improve water quality at the intake gate would be to divert major agricultural drainage from the Sacramento Valley and effluent from the Sacramento Regional Water Treatment Plant to the Yolo Bypass. This option would also reduce the effects of CVP and SWP export facilities on fish by eliminating predation in Clifton Court Forebay, closing the Delta Cross Channel gates to improve fish migration, and eliminating reverse flow. Implementing this project would result in substantial changes to CVP and SWP system operations and cause a potentially significant impact on hydropower generation and facilities.

*Franks Tract Project* Reclamation and DWR propose to implement the Franks Tract Project to improve water quality and fisheries conditions in the Delta. Reclamation and DWR are evaluating installing operable gates to control the flow of water at key locations (Threemile Slough and/or West False River) to limit the entry of fish species of concern and higher salinity water into Franks Tract. In addition to improving water quality, the gates would limit migration of delta smelt into the central and south Delta, where their survival rates are reduced. By protecting fish resources, this project also would improve the operational reliability of the CVP and SWP because curtailments (pumping restrictions) in project operations would likely be less frequent.

The project gates would be operated seasonally (January through September) and during certain hours of the day, depending on fisheries and tidal conditions. Boat passage facilities would be included to allow watercraft to pass through when the gates are in operation. The Franks Tract Project is consistent with ongoing planning efforts for the Delta to help balance competing uses and create a more sustainable system for the future. Public scoping meetings were held in October 2008 and preparation of a joint EIS/EIR for the project is under way. The EIS/EIR is expected to be published in fall 2011, with a ROD to be issued and CEQA certification to occur in spring 2012.

Reclamation and DWR have conducted studies to evaluate the feasibility of modifying hydrodynamic conditions near Franks Tract to improve Delta water quality and enhance the aquatic ecosystem. The results of these studies indicate that modifying hydrodynamic conditions near Franks Tract may substantially reduce the Delta's salinity and protect its fishery resources, including the sharply declining populations of delta smelt, a Federally listed and State-listed species that is endemic to the Delta.

The goals of the Franks Tract Project are as follows:

- Modify hydrodynamic conditions to protect fish species of concern, particularly delta and longfin smelt.

- Improve operational flexibility of the CVP and SWP by protecting Delta fish resources; reduce intrusion of higher salinity water resulting from normal tidal influences, sea level rise, or catastrophic levee failures; and protect water quality during extended closures of the Delta Cross Channel.

- Develop water quality and fish protection measures consistent with long-term planning efforts.

*In-Delta Storage Program (Delta Wetlands Project)* DWR, in coordination with the California Bay-Delta Authority and with technical assistance from Reclamation, completed the State feasibility study for the In-Delta Storage Program in the south Delta, within the extended study area. The In-Delta Storage Project would provide capacity to store approximately 217 TAF of water in the south Delta for a wide array of water supply, water quality, and ecosystem benefits. The project would consist of two storage islands (Webb Tract and Bacon Island) and two habitat islands (Holland Tract and Bouldin Island), an embankment design, consolidated inlet and outlet structures, project operations, and habitat management plans. The objectives of the project are to enhance water supply reliability and the operational flexibility of the CVP/SWP system, contribute to ecosystem restoration, and provide water for the Environmental Water Account (EWA) (DWR 2011c). (See the discussion of the EWA below.)

Detailed planning work on the In-Delta Storage Project has been suspended since July 2006 when State funding was cut (DWR 2011c).

*Los Vaqueros Reservoir Expansion Project* Reclamation, DWR, and Contra Costa Water District are implementing the Los Vaqueros Reservoir Expansion Project in the Delta, within the extended study area. The project's goal is to improve water quality and water supply reliability for Bay Area water users while enhancing the Delta's environment. The existing Los Vaqueros Reservoir storage will be expanded from the existing 100 TAF to 160 TAF to improve water quality and water supply reliability. The Contra Costa Water

District's board of directors certified the EIR and approved the Los Vaqueros Reservoir Expansion Project on March 31, 2010. Construction began in March 2011 (Reclamation and CCWD 2011).

*South Delta Improvements Program* DWR and Reclamation are seeking permits for the installation and operation of permanent operable gates to implement improvements in the south Delta for protection of local water levels, water quality, and Chinook salmon (DWR 2010). Construction of operable gates at four locations in the south Delta under the South Delta Improvements Program (SDIP) incorporates dredging and extension of agricultural intakes. These proposed actions are intended to maximize diversion capability into Clifton Court Forebay while providing an adequate water supply for South Delta Water Agency and reducing adverse effects of SWP exports on aquatic resources. The SDIP includes physical/structural improvements and operational changes (Reclamation and DWR 2005).

The SDIP was included in the OCAP, which covers SWP and CVP operations. Both USFWS and NMFS rendered jeopardy BOs on the OCAP. The NMFS opinion, issued in June 2009, specifically directs DWR to halt implementation of the SDIP. NMFS indicates that consultation for the SDIP cannot be reinitiated until after 3 years of fish predation studies at the South Delta temporary barriers are completed. After all permits have been acquired, DWR can proceed with construction. No schedule has been established for project completion.

*Central Valley Flood Protection Plan* Legislation passed in 2007 directs DWR to develop three documents that will guide improvement of integrated flood management:

- *State Plan of Flood Control Descriptive Document* to inventory and describe the flood management facilities, land, programs, conditions, and mode of operations and maintenance for the State/Federal flood protection system in the Central Valley.

- *Flood Control System Status Report* to assess the status of the facilities included in the State Plan of Flood Control Descriptive Document, identify deficiencies, and make recommendations.

- *Central Valley Flood Protection Plan* (CVFPP) to describe a sustainable, integrated flood management plan that reflects a systemwide approach for protecting areas of the Central Valley that currently receive protection from flooding by existing facilities of the State Plan of Flood Control. The plan will incorporate the State Plan of Flood Control and Flood Control System Status Update. The CVFPP must be prepared by January 1, 2012, and is scheduled for adoption by the Central Valley Flood Control Board by July 1, 2012.

The CVFPP will be a sustainable, integrated flood management plan that describes the existing flood risk in the Central Valley and recommends actions to reduce the probability and consequences of flooding. Produced in partnership with Federal, tribal, local, and regional partners and other interested parties, the CVFPP will also identify the mutual goals, objectives, and constraints important in the planning process; distinguish plan elements that address mutual flood risks; and, finally, recommend improvements to the State/Federal flood protection system.

*Resource Management and Restoration Actions* The actions related to resource management and restoration that are described below were identified as reasonably foreseeable.

*Trinity River Mainstem Fishery Restoration Program* The Trinity River Restoration Program staff, funded by Federal, State, and local agencies, is responsible for implementing the Trinity River Mainstem Fishery Restoration Program in the CVP service area at Lewiston Dam on the Trinity River. The program plans to implement recovery actions for the Trinity River and its fish and wildlife populations. This plan includes direct in-channel actions, continued watershed restoration activities, replacement of bridges and structures within the floodplain, and a program to monitor and improve restoration activities. Some of the actions and activities have been implemented and are operational. The plan has two restoration goals: reestablish the natural physical processes that create and maintain high-quality aquatic habitat; and create spawning and rearing conditions downstream from the dams, including adequate water temperatures, that best compensate for lost habitat upstream.

The ROD for the Trinity River Restoration Program was signed in December 2000 and, after various legislative delays, was put into action after November 2004. Full implementation of the releases specified in the ROD and construction of the channel rehabilitation sites depend on identifying and implementing an appropriate realty strategy for private landowners along the river (TRRP 2011).

*Central Valley Project Improvement Act* The Central Valley Project Improvement Act (Title 34, Sections 3401–3408(h) of Public Law 102-575) is concerned with restoring anadromous fish populations, providing water supplies for Federal and State refuges, mitigating effects of the CVP on other fish and wildlife, and retiring drainage-impaired farmlands. To fulfill these provisions, the Central Valley Project Improvement Act established an ongoing program creating a fund for restoration actions. The program is financed by the CVP's water and power users and administered by Reclamation. Funds are contributed to multiple restoration actions annually to finance restoration of aquatic, riparian, and other habitats and modify CVP operations.

*CALFED Ecosystem Restoration Program* DFG, USFWS, and NMFS implement the CALFED Ecosystem Restoration Program (CALFED 2000b), which works to improve the ecological health of the Bay-Delta

watershed by restoring and protecting habitats, ecosystem functions, and native species. The program includes all projects authorized, funded, and permitted (even if not constructed) to date, particularly in the Delta, that aim to do any of the following:

- Recover at-risk native species dependent on the Delta, Suisun Bay, and San Francisco Bay
- Minimize the downward population trends of native species that are not listed
- Protect and restore functional habitat types in the Bay-Delta estuary and its watershed for ecological and public values
- Prevent the establishment of additional nonnative invasive species and reduce the negative ecological and economic impacts of established nonnative species in the Bay-Delta estuary
- Improve and/or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta estuary and watershed

Since its inception, Ecosystem Restoration Program agencies have consolidated their vision into a single "blueprint" for ecosystem restoration. They further identified more than 600 programmatic actions and the 119 milestones throughout the Bay-Delta watershed. The blueprint has been implemented through a large number of competitive and directed grants.

*Environmental Water Account* The EWA Operating Principles Agreement has provided the basis for the operation of the EWA Program since the CALFED ROD was signed in August 2000. The EWA is described below, followed by a discussion of the limited EWA that resulted from the OCAP biological assessment.

*EWA Overview* The five EWA agencies (DWR, DFG, NMFS, USFWS, and Reclamation) all signed the EWA Operating Principles Agreement, giving the program its operational guidance through September 2004. The five agencies signed a memorandum of understanding (MOU) extending the EWA through December 31, 2007. The principle underlying the EWA was that Reclamation and DWR would operate the CVP and SWP in response to requests by DFG, NMFS, and USFWS to provide protections to fish beyond those required in existing regulatory standards. Specifically, additional water would be provided to the projects later in the season at no extra cost to the Federal and State water contractors.

In 2006, the EWA agencies were cooperating on development of an EIS/EIR for a long-term extension of the EWA Program. However, because Reclamation

decided to pursue reconsultation on the OCAP for the CVP and SWP Delta facilities, the agencies suspended work on the long-term EWA EIS/EIR and instead developed a supplement to the EIS/EIR covering EWA operations through 2011. That supplement was completed in early summer 2008 and was certified by DWR.

The supplemental EWA EIS/EIR was originally intended to facilitate another MOU among the five EWA agencies extending the EWA on a short-term basis through 2011. However, the decision of the U.S. District Court in *NRDC v. Kempthorne* (2007 WL 4462395 (E.D. Cal., December 14, 2007)) placed constraints on the CVP's and SWP's Delta export pumps, in the form of prescribed pumping limits that essentially replace most of the voluntary adaptive decisions on pumping curtailments made under the EWA Program.

In *NRDC v. Kempthorne*, the court directed USFWS to complete and issue a new BO addressing the OCAP, with emphasis on protection of delta smelt. The uncertainty of the resulting requirements on Delta export operations of the CVP and SWP is a major unknown factor in assessing the role of a continued EWA Program.

In 2007, the EWA agencies used new scientific information to reduce pumping based on criteria different from those used in previous EWA operational years; this action was similar to those prescribed by the decision in *NRDC v. Kempthorne*. Pumping from the CVP and SWP pumps was curtailed by 501,500 acre-feet during the 2007 water year, the largest curtailment made during the 7-year history of the EWA Program.

DWR and DFG are also discussing measures to protect longfin smelt. Additional constraints to protect salmon and longfin smelt could further constrain Delta exports and increase the EWA-type water cost to provide such protection.

The intent for the EWA Program was to use public funding during the program's initial years to provide the replacement water required to meet the program goal of no uncompensated water cost to CVP and SWP water users. Substantial public funding was provided in several bond issues; however, most of that funding has been used, and the remaining public funding for the continuation of the EWA is very limited.

There is no plan at this time to provide additional public funding to continue the EWA Program. Since 2008, public funding has been insufficient to provide replacement water to compensate for reductions in Delta pumping to protect Delta fish species, as was done in prior years. In addition, some of the pumping reductions that were previously voluntary may became mandatory. Thus, the nature of the future EWA Program, if any, is subject to further discussion among the five EWA agencies.

DWR has executed an agreement with Yuba County Water Agency to implement a portion of the Yuba Accord, providing about 60 TAF of water per year to DWR for EWA purposes through 2015. DWR also retained enough funds to provide a one-time purchase of up to about 150 TAF for EWA purposes in 2009. Reclamation had some funding from congressional authorization of the EWA Program through 2010, and expected to receive additional appropriations through that period, optimistically enough to purchase about 25 TAF for the next few years.

DWR envisions that Federal resources will be used to address additional fisheries issues in the Delta while funding is available, and that State resources will be used for the Vernalis Adaptive Management Program and its shoulders.

While developing the OCAP project description as the basis for the USFWS and NMFS reconsultation, Reclamation and DWR defined a "limited EWA" as being part of that project description. It is described below.

*Limited Environmental Water Account per OCAP Biological Assessment* The original EWA was established in 2000 by the CALFED ROD, and operating criteria are described in detail in the EWA Operating Principles Agreement attachment to the ROD. In 2004, the EWA was extended to operate through the end of 2007. Reclamation, USFWS, and NMFS received congressional authorization to participate in the EWA at least through September 30, 2010, per the CALFED Bay-Delta Authorization Act (Public Law 108-361). However, for these Federal agencies to continue participation in the EWA beyond 2010, additional authorization will be required, and continued program activities and funding are highly uncertain.

The EWA agencies acquire assets and determine how the assets should be used to benefit the at-risk native fish species of the Bay-Delta estuary. Operation of the EWA Program is guided by the EWA Team, which comprises technical and policy representatives from each of the five EWA agencies. The EWA Team coordinates its activities with the Water Operations Management Team.

The original purpose of the EWA was to enable diversion of water by the CVP and SWP from the Delta, with diversions to be reduced when at-risk fish species may be harmed, but without uncompensated loss of water to CVP and SWP contractors. Typically, when pumping was curtailed, the EWA replaced the lost water by purchasing surface water or groundwater supplies from willing sellers and by taking advantage of regulatory flexibility and certain operational assets. From 2001 through 2007, when pumping at Banks was curtailed to protect Delta fish, the EWA often owed a debt of water to the SWP, usually reflected in San Luis Reservoir.

The EWA agencies are undertaking environmental review to determine the future of the EWA. No decision has yet been made about the EWA; therefore, for the purposes of this PDEIS, the EWA has been analyzed with limited assets,

focusing on providing assets to support the Vernalis Adaptive Management Program and, in some years, the "post-Vernalis Adaptive Management Program shoulder." The following are the EWA's assets:

- Releases of water described in Component 1 of the Yuba Accord – that is, annual release of an average of 60 TAF of water from the Yuba River to the Delta. Such releases are an EWA asset through 2015, with a possible extension through 2025. In most years the 60 TAF is expected to be reduced by carriage-water costs estimated at 20 percent, leaving an EWA asset of 48 TAF per year. The SWP will provide the 48 TAF per year from project supplies beyond 2015 if releases of Yuba Accord Component 1 water are not extended.

- Purchases of assets, to the extent that funds are available.

- Operational assets granted to the EWA in the CALFED ROD, as follows:

  - A 50 percent share of SWP export pumping of Central Valley Project Improvement Act Section 3406(b)(2) water and Environmental Restoration Program water from upstream releases

  - A share of the use of SWP pumping capacity in excess of the SWP's needs to meet contractor requirements with the CVP on an equal basis, as needed. (Such use may be under the Joint Point of Diversion.)

  - Any water acquired through flexibility in the export/inflow ratio.

  - Use of a 500-cfs increase in authorized Banks capacity from July through September (from 6,680 to 7,180 cfs).

  - Storage in project reservoirs upstream from the Delta and in San Luis Reservoir, with a lower priority than project water. Such stored water will share storage priority with water acquired for Level 4 refuge needs.

- Operational assets averaged 82 TAF from 2001 through 2006, and ranged from 0 to 150 TAF.

*San Luis Reservoir Low Point Improvement Project* As part of this project, Reclamation is investigating three alternatives to address the water quality problems within the CVP's San Felipe Division (Santa Clara and San Benito counties) that arise when San Luis Reservoir levels drop below 300 TAF during late summer in dry water years, resulting in large algal blooms. The alternatives being considered are to (1) expand the 6-TAF Pacheco Reservoir to 80 TAF or 130 TAF, (2) lower the San Felipe Intake at San Luis Reservoir, or (3) implement a combination comprehensive plan. The combination

comprehensive plan would involve increasing groundwater recharge and recovery capacity, implementing desalination measures, reoperating Santa Clara Valley Water District's raw- and treated-water systems, and implementing institutional measures. If Pacheco Reservoir were to be enlarged, the reservoir would be filled with Delta water; thus, additional impacts on Delta aquatic species (e.g., juvenile salmonids and delta smelt) could result from an increase in Delta exports. The environmental scoping report for the San Luis Reservoir Low Point Improvement Project was released in January 2009 and the plan formulation report was published in January 2011.

*B. F. Sisk Dam Corrective Action Project* B.F. Sisk Dam (also known as San Luis Dam) is a 300-foot-high, compacted earthfill embankment located on the west side of California's Central Valley approximately 12 miles west of Los Banos. Owned by Reclamation and operated by DWR, the dam is more than 3½ miles long. B.F. Sisk Dam impounds San Luis Reservoir, which has a total capacity of more than 2 million acre-feet. The dam was built between 1963 and 1967 to provide supplemental storage of irrigation water for the CVP and municipal and industrial water for the SWP. The Gianelli Pumping-Generating Plant lifts water from both the California Aqueduct and the Delta-Mendota Canal (via O'Neill Forebay) into San Luis Reservoir for storage.

The dam and reservoir are located in an area of high potential for severe earthquakes on active faults, primarily the Ortigalita Fault, which crosses the reservoir. In the early 1980s, Reclamation conducted an extensive investigation of the seismic safety of B. F. Sisk Dam. The general conclusion was that some of the less dense soils could undergo liquefaction in a major earthquake. However, the investigation determined that liquefaction would not be sufficiently widespread to cause the dam's slopes to become unstable. Using the methods available at the time, Reclamation predicted that the amount of deformation that would occur under severe shaking would be small, and concluded that the dam had no safety deficiencies.

By 2005, the state of the art in seismic analysis of dams had changed substantially, and additional investigations of dam safety were performed. With the updated methodology and earthquake loadings, the dam crest was predicted to settle during the most severe earthquakes, causing the height of the dam's crest to be at the reservoir's maximum water level. It is possible (although not likely) that the embankment deformation would exceed the available freeboard, which would cause the reservoir to overtop the embankment and erode a breach of the dam. Even without overtopping, it is possible that water flowing through cracks in the dam embankment could erode a breach as well.

Reclamation and DWR are conducting engineering and economic studies to determine alternatives for corrective actions that would address potential safety concerns related to structural stability under extreme seismic loading conditions. The agencies will prepare a joint EIS/EIR to evaluate the effects of implementing the B. F. Sisk Dam Corrective Action Project.

*Shasta-Trinity National Forest Land and Resource Management Plan* USFS has prepared the Shasta-Trinity National Forest (STNF) Land and Resource Management Plan (LRMP) to guide the management of the Shasta and Trinity national forests in the vicinity of Shasta Lake, in the primary study area. The primary goals of the STNF LRMP are to integrate a mix of management activities that allow use and protection of forest resources; meet the needs of guiding legislation; and address national, regional, and local issues. The plan also includes goals to do all of the following:

- Protect unique landscapes and their wild and scenic characteristics for the indefinite future
- Maintain a rich diversity of plants, fish, and wildlife
- Provide high-quality recreational experiences
- Provide a long-term sustained yield of timber, forage, and other resource products and services consumed by society

The plan also includes specific goals relating to wildlife, habitat, water quality, fires and fuel management, visual quality, recreation, minerals, law enforcement, and cultural resources (USFS 1995a). The STNF proposes projects to implement the LRMP, and publishes a list of those projects in the quarterly Schedule of Proposed Actions (USFS 2011). Proposed actions within the analysis area are included in the cumulative effects analysis.

*Iron Mountain Mine Restoration Plan* The Iron Mountain Mine Trustee Council developed the *Iron Mountain Mine Restoration Plan*. This plan identifies restoration actions to address injuries to or lost use of natural resources from acid mine drainage from the Iron Mountain Mine complex, located west of the upper Sacramento River in the primary study area. The plan involves restoring salmonid populations, riparian habitat, and instream ecological functions. The plan also involves implementing restoration projects to compensate for the lost use of public areas and public services. The aquatic and riparian habitats affected by releases of hazardous substances at or from the Iron Mountain Mine site include the site creeks (Boulder, Slickrock, Flat, and Spring) and the mainstem and tributaries of the Sacramento River from Keswick Reservoir to RBDD. As additional compensation for damage to natural resources, this project includes an option for the Federal government to acquire approximately 1,250 acres for transferring into public ownership and to be administered by the U.S. Bureau of Land Management (BLM) (IMMTC 2002, NOAA 2009). The Iron Mountain Mine Trustee Council has allocated funds to several projects designed to meet the goals of the *Iron Mountain Mine Restoration Plan*.

*Mendocino National Forest Land and Resource Management Plan* USFS developed the *Mendocino National Forest Land and Resource Management*

*Plan* (Mendocino National Forest LRMP) to direct the management program for use and protection of the Mendocino National Forest in the primary and extended study areas. The plan fulfills legislative requirements while addressing national, regional, and local issues. The Mendocino National Forest LRMP also includes goals for fish and wildlife, wild and scenic rivers, minerals and energy, law enforcement, heritage resources, fire and fuels, facilities, air quality and diversity (USFS 1995b). The Mendocino National Forest LRMP is currently being implemented.

*Sacramento River Conservation Area Forum Program* The Sacramento River Conservation Area Forum is a nonprofit organization that works to protect, restore, and enhance the fisheries and riparian habitat along the Sacramento River in the primary and extended study areas, from Keswick Dam downriver to Verona. This is a cooperative effort that works to ensure that habitat restoration and management addresses not only the dynamics of riparian ecosystems, but also the realities of local agricultural and recreational issues associated with land use changes occurring along the river. The program (Resources Agency 2003) has goals to protect, restore, and enhance fisheries and riparian habitat along the Sacramento River and its tributaries and develops and implements site-specific and subreach plans for areas within the conservation area.

*U.S. Bureau of Land Management Redding Resource Management Plan* BLM prepared this plan (BLM 1992) to identify the direction for the proposed management of public lands and Federal mineral estate it administers within the primary study area and the extended study area along the middle Sacramento River. The primary goal of BLM's Redding Resource Management Plan is to manage public lands to prevent deterioration of habitat for special-status species, thereby precluding the need for Federal or State listing of those species. In 1993, BLM issued a ROD announcing its intent to implement the plan.

*Sacramento River National Wildlife Refuge Draft Comprehensive Conservation Plan* This plan, put forth by USFWS, provides a 15-year strategy for achieving the goals of the Sacramento River National Wildlife Refuge, located between Red Bluff and Colusa along the middle Sacramento River in the extended study area. One of the plan's goals is to contribute to the recovery of endangered and threatened species and provide natural diversity and abundance of migratory birds and anadromous fish by restoring and managing viable riparian habitats along the Sacramento River, using the principles of landscape ecology. The plan also seeks to provide high-quality opportunities for hunting, fishing, wildlife viewing, and photographic visits; provide visitor safety; and ensure compliance with regulations through law enforcement (USFWS 2005b).

The *Draft Comprehensive Conservation Plan and Environmental Assessment for the Sacramento National Wildlife Refuge* (USFWS 2005b) became available for review and comment in July 2008, with the review period scheduled to end

in September 2008. The final conservation plan will be developed through modifications made during the internal and public review processes.

*Comprehensive Management Plan for the Sacramento River Wildlife Area* DFG has prepared a this plan for the 3,770-acre Sacramento River Wildlife Area between Red Bluff and Colusa along the middle Sacramento River in the extended study area. This plan provides an ecosystem approach to managing the Great Valley riparian habitat communities in the wildlife area for their ecological values and the enjoyment of the public (DFG 2004).

*North Delta Flood Control and Ecosystem Restoration Project* Reclamation and DWR propose the North Delta Flood Control and Ecosystem Restoration Project in the north Delta, within the extended study area (DWR 2011d). The goal of this project is to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. Components being considered for flood control include setback levees, detention basins, dredging, and levee degradation for floodplain expansion, which may also be configured to create quality habitat for species of concern in the north Delta area. These goals would be accomplished by using McCormick-Williamson Tract and Staten Island in the Delta.

The DEIR was released in January 2008, followed by the FEIR in 2010. The design will be completed by fall 2011, with construction expected to be complete in summer 2013.

*Levee Actions* The actions related to levees that are described below were identified as reasonably foreseeable.

*California Department of Water Resources Levee Repair* DWR and USACE are responsible for repairing critical erosion sites on California's Federal/State levee system throughout the primary and extended study areas, including the CVP and SWP service areas. Repairs are necessary to keep the levee systems functioning. Some of these systems have deteriorated over time or do not meet current design standards, or both. In general, repairs to Federal and State project levees are being made under three main programs: the Critical Erosion Repairs Program, the Sacramento River Bank Protection Project, and the Public Law 84-99 Rehabilitation Program. A fourth program to repair critically damaged levees in the San Joaquin Flood Control System is under development by DWR. DWR is also working with local agencies to survey and document damage from erosion at additional sites that are under local control (not part of the Federal/State flood control system). The aim is also to assist local jurisdictions in determining the best approach for needed repairs (DWR 2011e).

Nearly 300 levee repair sites have been identified to date. More than 100 of the most critical sites have been repaired. Repairs to others are either in progress or

scheduled to be completed in the near future, and still more repair sites are in the process of being identified, planned, and prioritized (DWR 2011e).

*CALFED Levee System Integrity Program* DWR, DFG, and USACE implement the CALFED Levee System Integrity Program, which maintains and improves the integrity of the Bay-Delta estuary's levee system. The goal of the Levee System Integrity Program is to reduce risk to land use and associated economic activities, water supply, agriculture and residential use, infrastructure, and the ecosystem from the effects of catastrophic breaching of Delta levees. Resources protected by the program include water quality, ecosystem health, infrastructure such as utilities and transportation corridors, agriculture, and recreational industries.

Since 2000, protection for and maintenance of nearly 700 miles of Delta levees has been increased, with ongoing maintenance undertaken along more than 600 miles of eligible project and nonproject levees. Further, stability was improved for more than 45 additional miles of levees. Large levee rehabilitation projects have been undertaken on numerous islands, along with projects to grow native vegetation, reuse more than 2 million cubic yards of dredge material for levee stability and habitat development, and develop approximately 50 acres of riparian and wetland habitat and 3,000 linear feet of shaded riverine aquatic habitat (CALFED 2011).

*Natomas Levee Improvement Program Landside Improvement Project* SAFCA is implementing the multiple-phase Natomas Levee Improvement Program Landside Improvements Project along the lower Sacramento River in the extended study area, in conjunction with USACE. The project involves implementing improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento counties and modifying associated landscaping and irrigation/drainage infrastructure. The project objectives are to provide at least a 100-year level of flood protection to the Natomas Basin as quickly as possible, provide "200-year" protection to the basin over time, and avoid any substantial increase in expected annual damages as new development occurs in the basin (SAFCA 2007).

Multiple CEQA and NEPA documents have been issued by SAFCA and USACE for various phases of this project since 2008. The FEIS for Phase 4a of the project was issued by USACE in February 2010. Construction of some phases of the project is in progress. All construction is expected to be completed by 2014 (SAFCA 2010).

*West Sacramento Levee Improvement Program* The West Sacramento Levee Improvement Program involves constructing improvements to the levees that protect West Sacramento to meet local and Federal flood protection criteria. The program area includes the entire boundaries of the West Sacramento Area Flood Control Agency, which encompass portions of the Sacramento River, the Yolo Bypass, the Sacramento Bypass, and the

Sacramento Deep Water Ship Channel. The levee system associated with these waterways includes more than 50 miles of levees in Reclamation Districts 900, 537, and 811; DWR's Maintenance Area 4; and the Sacramento Deep Water Ship Channel. These levees completely surround West Sacramento. For the purposes of this program, the levees have been generally divided into nine reaches: Sacramento River Levee North, Sacramento River Levee South, Port North Levee, Port South Levee, South Cross Levee, Deep Water Ship Channel Levee East, Deep Water Ship Channel Levee West, Yolo Bypass Levee, and Sacramento Bypass Levee. Construction began in 2008 and will continue through 2012 (City of West Sacramento 2010).

*Land Use Planning Actions* Land use plans and policies are described in Chapter 17, "Land Use and Planning"; applicable plans are listed in this section with brief summaries. Inconsistency with land use plans and policies does not necessarily indicate that adverse affects on the environment would occur; however, land use plans and policies guide development and land management activities that would affect the physical environment, and SLWRI actions could have additive or combined effects.

*Federal Land Use Planning* Federal lands are not subject to county or city general plans. Land use planning direction for the Whiskeytown-Shasta-Trinity National Recreation Area (NRA) is guided by national legislation, regional forest directives, and forest-specific management directives found in the STNF LRMP.

*County and City Land Use Planning* Land use planning is the province of local governments in California. All cities and counties in California are required by the State to adopt a general plan that establishes goals and policies for long-term development, protection from environmental hazards, and conservation of identified natural resources (California Government Code, Section 65300). General plans lay out the pattern of future residential, commercial, industrial, agricultural, open-space, and recreational land uses within a community. To facilitate implementation of planned growth patterns, general plans identify goals and/or policies to establish land use patterns.

The *Shasta County General Plan* (2004) provides planning guidance for privately owned land in Shasta County. Land use directives are provided in the form of goals, policies, objectives, standards, and guidelines. The *Shasta County General Plan* designates the following land uses along the Sacramento River from Shasta Dam south to the Tehama County line:

- Rural residential
- Greenway
- Habitat resource
- Natural habitat

- Agricultural – cropland
- Agricultural – small-scale crops, grazing
- Mineral resources

The *Tehama County General Plan* (2009) designates the following land uses along the Sacramento River from the Shasta County line in the north to Red Bluff:

- Habitat resource, resource lands, and public/wilderness
- Cropland and grazing
- General commercial
- Scenic easement and open space
- Commercial recreation
- Urban and city
- Rural small lot, rural large lot, and suburban

The *City of Shasta Lake General Plan* (1999)designates the following land uses along Shasta Dam Boulevard, the primary roadway leading up to Shasta Dam:

- Community Park
- 100-Year Floodplain
- Public Facilities
- Commercial
- Mixed Use
- Rural Residential (1 unit/2 acres; 1 unit/5 acres)
- Suburban Residential (3 units/acre)
- Urban Residential (10 units/acre)
- Urban Residential – High (20 units/acre)

The City of Redding adopted an updated general plan in 2000 (City of Redding 2000). This general plan designates the following land uses along the Sacramento River within the city limits and sphere of influence:

- Greenway
- Park, Park-Golf
- Public Facility; Public Facility–School
- Recreational

- General Office
- General Commercial
- Neighborhood Commercial
- Residential (2 to 3.5, 3.5 to 6, 6–10 units/acre)
- Critical Mineral Resource Overlay
- Mixed Use Neighborhood Overlay

The City of Anderson released its updated general plan in May 2007 (City of Anderson 2007). This general plan designates the following land uses along the Sacramento River within the city limits and sphere of influence:

- Commercial
- Industrial
- Public/Quasi-Public
- Medium-Density Residential
- Rural Residential/Rural Estate

The City of Red Bluff most recently amended the Land Use Element of its general plan in 1993. The general plan designates the following land uses along the Sacramento River within the city limits and sphere of influence:

- Primary Floodplain
- Exclusive Agriculture
- General Commercial
- Central Business Districts
- Single-Family Residential
- General and Neighborhood Apartment Districts
- General Industrial
- Public Agency District
- Park

The lower Sacramento River and Delta portions of the extended study area are within the planning jurisdiction of Butte, Colusa, Contra Costa, Glenn, Sacramento, Solano, Sutter, Yolo, and Yuba counties. The largest cities in this region are Antioch, Chico, Davis, Fairfield, Martinez, Marysville, Pittsburg, Sacramento, Vacaville, Vallejo, West Sacramento, and Woodland. Each of these entities currently has an adopted general plan and zoning ordinance. Land

use planning documents are adopted by Federal agencies for Federally managed lands in the lower Sacramento River and Delta areas.

The CVP extends from the Cascade Range near Redding in the north to the Tehachapi Mountains near Bakersfield in the south. The CVP serves farms, homes, and industry in California's Central Valley as well as major urban centers in the San Francisco Bay Area. SWP contractors are located in the southern San Joaquin Valley, along the central coast, and in Southern California. The CVP and SWP service areas include portions of both the primary and extended study areas. CVP water irrigates more than 3 million acres of farmland and provides drinking water to nearly 2 million consumers. SWP deliveries are 70 percent urban and 30 percent agriculture, serving 20 million Californians and more than 600,000 irrigated acres, respectively. Each of the counties and incorporated cities in the CVP and SWP service areas has its own adopted general plan and zoning ordinance. Federally managed lands in the service areas are managed in accordance with land use and planning documents similar to the STNF LRMP and BLM's resource management plan, and military installations located in the service areas have their own planning processes.

*Development* The development actions that are described below were identified as reasonably foreseeable.

*Antlers Bridge Replacement* The California Department of Transportation (Caltrans), in cooperation with the Federal Transit Administration, is replacing Antlers Bridge over Shasta Lake, which is located on Interstate 5 near the community of Lakehead in Shasta County, in the primary study area. This project involves constructing a 1,942-foot, five-lane segmental bridge with deep-pile foundations that are 12 feet in diameter. The project also includes realignment of a 0.4-mile-long segment of Interstate 5, requiring hillside excavation, construction of a five-lane freeway section, and demolition of the existing 1,500 feet of steel deck truss bridge. The new bridge is being constructed next to the existing bridge, which will remain open to traffic until the new bridge is completed. This project will affect visual resources, fish and wildlife, and water quality standards. However, incorporation of mitigation will reduce these impacts to a less-than-significant level. The project is not expected to have any other significant impacts (Caltrans and FHWA 2007). Construction began in 2009 and will be completed in 2014.

*Stillwater Business Park* The City of Redding is constructing the Stillwater Business Park (City of Redding 2011), a 700-acre master-planned business park with corporate, manufacturing, and office uses within the Redding city limits in the primary study area. Phase 1 of the project entails developing up to 3,245,300 square feet of primarily light industrial, general industrial, and high-tech cluster uses throughout the entire site. Phase 2 will involve developing up to 1,165,100 square feet of the same uses on the remaining parcels that have not been developed under Phase 1. Developable land includes 16 parcels ranging in size from 5 acres to 100 acres. Two parcels totaling 186

acres will be designated for open space. Currently, 16 lots are available for development.

*Shasta Metro Enterprise Zone Program* The Economic Development Corporation of Shasta County is responsible for the Shasta Metro Enterprise Zone Program, implemented around Shasta Lake and the upper Sacramento River, in the primary study area. Enterprise zones are designated by the State as economic development areas created to encourage and stimulate economically depressed areas. This is generally achieved via tax, hiring, and financial incentives from the State, in combination with local assistance. On November 6, 1991, the State designated the Shasta Metro Enterprise Zone, which expired on November 5, 2006. Shasta County applied for a new zone and received final designation effective November 6, 2006, to November 5, 2021 (EDC 2011). The Shasta Metro Enterprise Zone is intended to stimulate development and redevelopment projects within the project area.

The Shasta Metro Enterprise Zone covers more than 11,000 parcels, or more than 50 percent of all business entities in Shasta County. An EIR for the Shasta Metro Enterprise Zone was certified and approved by the Shasta County Board of Supervisors on January 15, 2008 (Shasta County 2008).

**Significance Criteria** For purposes of this PDEIS, cumulative impacts of an alternative under the SLWRI would be significant if implementing the alternative would make a considerable incremental contribution to a significant cumulative effect. The alternative's contribution is evaluated in combination with the effects of other past, present, and reasonably foreseeable future projects to determine whether (1) the overall cumulative effect would be significant and (2) the alternative's contribution would be considerable. Cumulatively significant impacts would do any of the following:

- Cause a significant adverse effect on a resource (using the criteria for significance described in the "Environmental Consequences and Mitigation Measures" sections of Chapters 4 through 25 of this PDEIS)
- Adversely affect a resource that already has a degraded or declining condition because of substantial adverse effects that have already occurred
- Cause effects that were initially not significant, but that would be part of an irreversible degrading or declining trend

## 3.3 Resources Eliminated from Further Consideration

CEQA and the State CEQA Guidelines provide for identification and elimination from detailed study of the issues that are not significant or that have been covered by prior environmental review (Public Resources Code, Section

21002.1; State CEQA Guidelines, Section 15143). The NEPA regulations provide similar provisions (40 CFR 1501.7(a)(3)).

During initial scoping with the public and governmental agencies, and based on information obtained through literature review, agency correspondence, consultations, and field data collection, it was determined that no resource areas were able to be eliminated from detailed study. Therefore, all resource areas covered by NEPA and CEQA are addressed in this PDEIS.

## 3.4 Regulatory Framework

### 3.4.1 Federal

#### *National Environmental Policy Act*

NEPA is the nation's broadest environmental law, applying to all Federal agencies and most of the activities they manage, regulate, or fund that affect the environment. This law requires Federal agencies to disclose and consider the environmental implications of their proposed actions. NEPA establishes environmental policies for the nation, provides an interdisciplinary framework for Federal agencies to avoid or minimize environmental impacts, and contains action-forcing procedures to ensure that Federal agency decision-makers take environmental factors into account.

#### *Clean Water Act*

**Section 404** Section 404 of the CWA requires that a permit be obtained from USACE for the discharge of dredged or fill material into "waters of the United States, including wetlands." Waters of the United States include wetlands and lakes, rivers, streams, and their tributaries. Waters of the United States are defined for regulatory purposes, at 33 CFR 328.3, as follows:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide; (2) All interstate waters, including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs 1–4 in this section; (6) The territorial seas; and (7) Wetlands adjacent to waters identified in paragraphs 1–6 in this section.*

CWA Section 404(b) requires that USACE process permits in compliance with guidelines developed by the U.S. Environmental Protection Agency (EPA).

These guidelines (the CWA Section 404(b)(1) Guidelines) require the analysis of alternatives available to meet the project's purpose and need, including those alternatives that avoid and minimize discharges of dredged or fill materials in waters. Once alternatives deemed to be practicable have been identified, the only action that USACE can permit must be the least environmentally damaging practical alternative.

Actions typically subject to Section 404 requirements are those that would take place in wetlands or stream channels, including intermittent streams, even if they have been realigned. Within stream channels, a permit under Section 404 would be needed for any discharge activity below the ordinary high-water mark. (The ordinary high-water mark is the line on the shore established by the fluctuations of water. It is indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; or the presence of litter or debris.)

The ROD for the CALFED final programmatic EIS/EIR includes a CWA Section 404 MOU signed by Reclamation, EPA, USACE, and DWR. Under the terms of the MOU, when a project proponent applies for a Section 404 individual permit for CALFED projects, the proponent is not required to reexamine program alternatives already analyzed in the programmatic EIS/EIR. USACE and EPA will focus on project-level alternatives that are consistent with the programmatic EIS/EIR when they select the least environmentally damaging practicable alternative at the time of a Section 404 permit decision.

**Section 401** Under CWA Section 401, applicants for a Federal license or permit to conduct activities that may discharge a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate. If appropriate, the certification must be obtained from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a Federal component and may affect state water quality (including projects that require a Federal agency approval such as issuance of a Section 404 permit) must also comply with CWA Section 401.

In California, the authority to grant water quality certification has been delegated to the SWRCB. Applications for water quality certification under CWA Section 401 are typically processed by the regional water quality control board with local jurisdiction—in this case the Central Valley Regional Water Quality Control Board. For a project to receive water quality certification, the project's potential impacts must be evaluated in light of water quality standards and CWA Section 404 criteria that govern discharges of dredged and fill materials into waters of the United States.

#### *Federal Endangered Species Act*

USFWS and NMFS share responsibility for implementing the ESA. Generally, USFWS manages terrestrial and freshwater species, while NMFS manages

marine and "anadromous" species (species that migrate from salt water to spawn in freshwater), such as Chinook salmon. Both agencies ensure that ESA requirements are followed and evaluate projects that may affect the continued existence of a Federally listed (threatened or endangered) species.

Section 9 of the ESA prohibits the take of Federally listed species. "Take" is defined under the ESA, in part, as killing, harming, or harassing. Under Federal regulations, take is further defined to include habitat modification or degradation where it actually results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of the ESA outlines procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitat. Section 7(a)(2) requires Federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. NMFS also ensures that projects will not adversely affect essential fish habitat, as defined in the 1996 Sustainable Fisheries Act (Public Law 104-297). The goal is to stop or reverse the continued loss of fish habitats by protecting, conserving, and enhancing habitat.

#### *Magnuson-Stevens Fishery Conservation and Management Act*

The Magnuson-Stevens Fishery Conservation and Management Act (commonly known as Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires Federal agencies to consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect "essential fish habitat." Essential fish habitat is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

The Magnuson-Stevens Act states that migratory routes to and from the spawning grounds of anadromous fish are considered essential fish habitat. The phrase "adversely affect" refers to the creation of any impact that reduces the quality or quantity of essential fish habitat. The concept of essential fish habitat is similar to that of "critical habitat" under the ESA; however, measures recommended to protect essential fish habitat by NMFS are advisory, not prescriptive. Federal activities that occur outside of essential fish habitat but that may nonetheless affect waters and substrate that constitute essential fish habitat must also be considered in the consultation process.

Under the Magnuson-Stevens Act, effects on habitat managed under the *Pacific Salmon Fishery Management Plan* must also be considered. The Magnuson-Stevens Act states that consultation regarding essential fish habitat should be consolidated, where appropriate, with the interagency consultation, coordination, and environmental review procedures required by other Federal statutes, such as NEPA, the Federal Wildlife Coordination Act, the CWA, and the ESA.

### *Fish and Wildlife Coordination Act*

Coordination under the Fish and Wildlife Coordination Act is intended to promote conservation of fish and wildlife resources by preventing their loss or damage. It also provides for development and improvement of fish and wildlife resources in connection with water projects. Federal agencies that undertake water projects must fully consider recommendations made by USFWS, NMFS, and the appropriate fish and wildlife agency – in this case, DFG – in their project reports and include measures to reduce impacts on fish and wildlife in project plans.

### *Federal Clean Air Act*

The Federal Clean Air Act (CAA) was enacted to protect and enhance the nation's air quality to promote public health and welfare and the productive capacity of the nation's population. The CAA requires that Federal actions be evaluated to determine their potential impacts on air quality in the project region. California has a corresponding law, which also must be considered during the EIS/EIR process.

For specific projects, Federal agencies must coordinate with the appropriate air quality management district and EPA. This coordination determines whether the project conforms with the CAA and the state implementation plan.

Section 176 of the CAA prohibits Federal agencies from engaging in or supporting an action or activity that does not conform with an applicable state implementation plan. Actions and activities must conform to the plan's purposes of eliminating or reducing violations of national ambient air quality standards, reducing the severity of violations, and attaining those standards expeditiously.

### *Federal Water Project Recreation Act*

The Federal Water Project Recreation Act requires Federal agencies with authority to approve water projects to include recreation development as a condition of approving permits. Recreation development must be considered along with any navigation, flood control, reclamation, hydroelectric, or multipurpose water resource project. The act states that "consideration shall be given to the opportunities, if any, which the project affords for outdoor recreation and for fish and wildlife enhancement…wherever any such project can reasonably serve either or both of these purposes consistently" (Title 16, Section 460l-12 of the U.S. Code (16 USC 460l-12)).

### *Safe Drinking Water Act*

The Safe Drinking Water Act mandates that EPA establish regulations to protect human health from contaminants in drinking water. This law authorizes EPA to develop national standards for drinking water and to create a joint Federal/state-tribal system to ensure compliance with these standards. The law also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

EPA has developed primary and secondary drinking water standards under its Safe Drinking Water Act authority. EPA and authorized states/tribes enforce the primary drinking water standards, which are contaminant-specific concentration limits that apply to certain public supplies of drinking water. The primary standards consist of two elements: goals for maximum contaminant levels, which are nonenforceable health-based goals; and maximum contaminant levels, which are enforceable limits set as close to the maximum contaminant level goals as possible, considering cost and feasibility of attainment.

### *National Historic Preservation Act*

Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations (36 CFR Part 800, as amended in 2004) requires Federal agencies to consider the effects of their actions, or those they fund or permit, on properties that are listed or eligible for listing in the National Register of Historic Places (commonly known as the National Register). The National Register is a register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. The regulations provided in 36 CFR Part 60.4 describe the criteria to evaluate cultural resources for inclusion in the National Register. Cultural resources can be significant on the national, state, or local level. Properties may be listed in the National Register if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet any one of the following criteria:

(A) Are associated with events that have made a significant contribution to the broad patterns of our history

(B) Are associated with the lives of persons significant in our past

(C) Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction

(D) Have yielded, or may be likely to yield, information important in prehistory or history

Generally, properties are not considered eligible for the National Register if they have achieved significance within the past 50 years. Certain exceptions are made in the regulation, such as a religious property deriving primary significance from architectural distinction, or a grave of a historical figure of outstanding importance if there is no appropriate site directly associated with his productive life.

### *Farmland Protection Policy Act*

The Farmland Protection Policy Act requires that a Federal agency examine the potential impacts of a proposed action on prime and unique farmland, as defined

by the U.S. Natural Resources Conservation Service. If the action would adversely affect farmland preservation, the Federal agency must consider alternatives to lessen the adverse effects.

### *Rivers and Harbors Appropriation Act of 1899*

The River and Harbors Appropriation Act of 1899 (commonly known as the Rivers and Harbors Act) addresses activities that involve constructing dams, bridges, dikes, or other obstructions across any navigable water. To place any obstruction to navigation outside established Federal lines, or to excavate from or deposit material in such waters, a permit must be obtained from USACE. Navigable waters are defined in 33 CFR 329.4 as follows:

> *Those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity.*

Sections of the River and Harbors Act applicable to the proposed action are described below.

**Section 9** Section 9 (33 USC 401) prohibits the construction of any dam or dike across any navigable water of the United States without consent from Congress and approval of the plans by the Chief of Engineers and the Secretary of the Army. Where the navigable portions of the water body lie wholly within the limits of a single state, the structure may be built under authority of the legislature of that state if the location and plans or any modification thereof are approved by the Chief of Engineers and by the Secretary of the Army.

**Section 10** Section 10 (33 USC 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. Construction of any structure in or over any navigable water of the United States, or the accomplishment of other work affecting the course, location, condition, or physical capacity of such waters, is unlawful unless the work has been authorized by the Chief of Engineers.

**Section 13** Section 13 (33 USC 407) states that the Secretary of the Army may permit the discharge of refuse into navigable waters if the Chief of Engineers has determined that the discharge will not injure anchorage and navigation. Discharges of refuse are prohibited unless a permit has been obtained. Although the prohibition in this section – known as the Refuse Act – is still in effect, the Secretary of the Army's permit authority has been superseded by the permit authority given to the EPA Administrator and the states under Sections 402 and 405 of the CWA, respectively.

### *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act, first enacted in 1918, implements domestically a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide international protection of migratory birds. The act authorizes the Secretary of the Interior to regulate the taking of migratory birds; it is unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird…" (16 USC 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the Migratory Bird Treaty Act includes several hundred species and essentially includes all native birds. The act offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame migratory birds.

### *Bald and Golden Eagle Protection Act*

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden eagles without a permit from the Secretary of the Interior. Similar to the ESA, the Bald and Golden Eagle Protection Act defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC 668-668c). Any disturbance that would injure an eagle, decrease productivity, or cause nest abandonment—including habitat alterations that could have these results—is considered take and can result in civil or criminal penalties.

### *National Forest Management Act*

The National Forest Management Act requires USFS to "provide for a diversity of plant and animal communities" (16 USC 1604(g)(3)(B)) as part of its multiple-use mandate. USFS must maintain "viable populations of existing native and desired non-native species in the planning area" (36 CFR 219.19). The Sensitive Species program is designed to meet this mandate and to demonstrate USFS's commitment to maintaining biodiversity on National Forest System lands.

A key requirement of National Forest Management Act is preparation of land and resource management plans that establish the goals, objectives, and standards and guidelines for managing the lands and resources of National Forest System lands managed by the various National Forests.

### *Federal Land Policy and Management Act*

Sections 201 and 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1711–1712) and the regulations in 43 CFR 1600 provide guidance and direction for implementing BLM's land use planning requirements established by resource management plans. Resource management plans and subsequent planning decisions are the basis for every on-the-ground action undertaken by BLM.

Resource management plans ensure that public lands are managed in accordance with the intent of Congress as stated in the FLPMA, under the principles of multiple use and sustained yield. As required by the FLPMA and BLM policy, public lands must be managed in a manner that will do all of the following:

- Protect the quality of ecological and scientific values
- Preserve and protect certain public lands in their natural condition, where appropriate
- Provide food and habitat for fish and wildlife and domestic animals
- Provide for outdoor recreation and human occupancy and use
- Recognize the nation's need for domestic sources of minerals, food, timber, and fiber from the public lands by encouraging collaboration and public participation throughout the planning process

Resource management plans are among the primary mechanisms for guiding BLM activities to achieve compliance with the FLPMA.

#### *National Wild and Scenic Rivers Act*

The National Wild and Scenic Rivers Act of 1968, as amended (Public Law 90-542; 16 USC 1271–1287), established the National Wild and Scenic Rivers System. This system identifies distinguished rivers of the nation that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The National Wild and Scenic Rivers Act preserves the free-flowing condition of designated rivers and protects their local environments. Section 5(d)(1) of the act requires Federal agencies to consider potential national wild, scenic, and recreational river areas when planning for the use and development of water and related land resources. Wild, scenic, and recreational river areas are defined as follows:

- *"Wild" river areas* are rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- *"Scenic" river areas* are rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible by roads in places.
- *"Recreational" river areas* are rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Designation as a National Wild and Scenic River explicitly prohibits the Federal government from licensing or permitting new hydroelectric dams or major diversions on these rivers. Federal agencies are also prohibited from assisting any water resource projects that may directly affect the resources for which the river was designated. Public lands within a corridor averaging one-quarter mile on both sides of the rivers are managed to protect resources designated as outstandingly remarkable for their scenic, recreational, historical/cultural, fish, wildlife, ecological, geological, or hydrologic value.

#### *Indian Trust Assets*

All Federal agencies have a responsibility to protect Indian trust assets. Indian trust assets are legal interests in assets held in trust by the Federal government for Native American tribes or individuals. Assets may be owned property, physical assets, intangible property rights, a lease, or the right to use something. Typically they include lands, minerals, water rights, hunting and fishing rights, natural resources, money, and claims.

#### *Executive Order 11988 (Flood Hazard Policy)*

Executive Order 11988 is a flood hazard policy for all Federal agencies that manage Federal lands, sponsor Federal projects, or provide Federal funds to state or local projects. The order requires that all Federal agencies take necessary action to reduce the risk of flood loss; restore and preserve the natural and beneficial values served by floodplains; and minimize the impacts of floods on human safety, health, and welfare.

#### *Executive Order 11990 (Protection of Wetlands)*

Executive Order 11990 is an overall wetlands policy for all agencies that manage Federal lands, sponsor Federal projects, or provide Federal funds to state or local projects. The order requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before they propose new construction in wetlands. Executive Order 11990 can restrict the sale of Federal land containing wetlands; however, it does not apply to Federal discretionary authority for non-Federal projects (other than funding) on non-Federal land.

#### *Executive Order 12898 (Environmental Justice Policy)*

Executive Order 12898 requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income populations. The requirements of Executive Order 12898 apply to all Federal actions that are located on Federal lands, sponsored by a Federal agency, or funded with Federal monies and may affect minority or low-income populations.

### *Executive Order 13007 (Indian Sacred Sites) and April 29, 1994, Executive Memorandum*

Executive Order 13007 (May 24, 1996) requires Federal agencies with land management responsibilities to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies are to maintain the confidentiality of sacred sites. Among other things, Federal agencies must provide reasonable notice of proposed actions or land management policies that may restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites. The agencies must comply with the April 29, 1994, executive memorandum, "Government-to-Government Relations with Native American Tribal Governments."

### *Executive Order 13112 (National Invasive Species Management Plan)*

Executive Order 11312 directs all Federal agencies to prevent and control introductions of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. Executive Order 11312 established the national Invasive Species Council, made up of Federal agencies and departments, and the supporting Invasive Species Advisory Committee, composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversee and facilitate implementation of the executive order, including preparation of a national invasive-species management plan.

### *Federal Transit Administration*

To address the human response to groundborne vibration, the Federal Transit Administration has set forth guidelines for maximum acceptable vibration criteria for different types of land uses. These include 65 vibration decibels for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, and laboratory facilities), 80 vibration decibels for residential uses and buildings where people normally sleep, and 83 vibration decibels for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, and offices) (FTA 2006).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics at the request of EPA (FTA 2006). For fragile structures, this committee recommends a maximum limit of 0.25 inch per second peak particle velocity (FTA 2006). (Peak particle velocity is a measure of the intensity of ground vibration, specifically the time rate of change of the amplitude of ground vibration.)

### *Federal Land Use Policies*

Federal land use policies apply only to actions on or affecting the uses of Federal lands. The Federal lands in the vicinity of the study area include the following:

- National Forest System lands administered by the Shasta-Trinity National Forest
- Reclamation-owned lands along the Sacramento River just south of Shasta Dam
- BLM-owned lands along the Sacramento River, just north of Red Bluff

Encroachment within these Federal properties would require approval from these entities.

#### *Shasta-Trinity National Forest Management Plan*

The *Shasta-Trinity National Forest Management Plan* was most recently revised in 1995. This document is revised every 10 to 15 years; it supersedes any previous forest plans, timber management plans, or NRA plans. It contains the goals and objectives for Shasta-Trinity National Forest, its standards and guidelines, management prescriptions to be applied to land areas, and management area direction. It also sets forth requirements for monitoring and implementation of the plan. The allocations associated with this plan not only reflect the capability and suitability of the land for various uses, but also respond to the public issues (such as recommendations for Wild and Scenic River designations) and development opportunities identified during the planning process.

#### *Whiskeytown-Shasta-Trinity National Recreation Area Management Plan*

The Whiskeytown-Shasta-Trinity NRA consists of the Shasta and Trinity units (managed by USFS) and the Whiskeytown Unit (managed by the National Park Service). Shasta-Trinity National Forest has initiated the scheduled revision of the management plan for the Shasta and Trinity units of the Whiskeytown-Shasta-Trinity NRA. Congress established the NRA on November 8, 1965, in Public Law 89-336. USFS and the National Park Service are required under the act to carry out administration under management plans, which must be revised periodically. The management plan was most recently revised in 1996. Through a series of amendments, USFS is now proceeding to update the *Shasta-Trinity National Recreation Area Management Guide*, with completion anticipated within the next 2 years. This plan is typically revised every 10 to 15 years.

The Shasta-Trinity National Recreation Area Management Guide guides the management of the NRA by interpreting the goals, objectives, standards, guidelines, and management prescriptions from the enabling legislation, Federal regulations, and the Forest Land and Resource Management Plan. It will address the management of resources, changes in technology, and recreation trends in Shasta-Trinity National Forest and the vicinity. Plan amendments may occur whenever monitoring requirements indicate a need for change. The Forest Supervisor can approve amendments to the plan if they are determined not to be significant; significant amendments require approval of the Regional Forester. Public notification and adherence to NEPA is required in any case.

### *Redding Resource Management Plan*

BLM owns and manages lands along the Sacramento River just north of Red Bluff. This land is managed by BLM in accordance with the *Redding Resource Management Plan*. This plan covers more than 250,000 acres in north central California within Butte, Shasta, Siskiyou, Tehama, and Trinity counties. Many Areas of Critical Environmental Concern and National Wild and Scenic River corridors are included within these easily accessed and heavily used public lands. Completed in 1993, the *Redding Resource Management Plan* primarily addresses recreation, land tenure, access, and forest management.

### *Federal Energy Regulatory Commission*

Changes to hydroelectric facilities on the Pit River – Instream flow releases or modifications to downstream structures – may necessitate an amendment to a Federal Energy Regulatory Commission (FERC) license. Typical modifications that require an amendment to a license or exemption include capacity changes, design changes, operational changes, land status changes, and time extensions. Before issuing a license amendment, FERC ensures that proposed changes to hydropower facilities comply with NEPA. For noncapacity-related amendments, the nature of the proposed change, the project type (based on proposed capacity), and the project's construction status determine which items outlined in the FERC Division of Hydropower Administration and Compliance's *Compliance Handbook* to include in the amendment application. Any item in the original license that would be modified as a result of the project would require that a revised version be filed along with the amendment application.

Once the need for an amendment is determined, the appropriate resource agencies are consulted. The extent of agency consultation depends on whether the amendment is capacity-related or noncapacity-related. After prefiling consultation is completed, the licensee files the amendment application. The FERC Division of Hydropower Administration and Compliance then determines whether a public notice is warranted and whether NEPA review is required. NEPA review entails preparing an environmental assessment and/or an EIS. The license amendment process is detailed in the *Compliance Handbook*.

### *U.S. Coast Guard*

The U.S. Coast Guard is responsible for approving the locations of and plans for bridges and causeways constructed across navigable waters of United States. The Coast Guard also approves the locations of and plans for international bridges and the alteration of bridges found to be unreasonable obstructions to navigation.

## 3.4.2 State

### *California Environmental Quality Act*

Prompted by the passage of NEPA in 1969, CEQA was signed into law in 1970 as California's counterpart to NEPA. CEQA requires State and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. The objectives of CEQA are to do all of the following:

- Disclose to decision makers and the public the significant environmental effects of proposed activities
- Identify ways to avoid or reduce environmental damage
- Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures
- Disclose to the public the reasons for agency approval of projects with significant environmental effects
- Foster interagency coordination in the review of projects
- Enhance public participation in the planning process

### *California Endangered Species Act*

Pursuant to the California Endangered Species Act (CESA), a permit from DFG is required for projects that could result in the take of a plant or animal species that is State-listed as threatened or endangered. Under the CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the CESA definition of take does not include "harming" or "harassing," as the Federal ESA definition does. As a result, the threshold for take is higher under the CESA than under the ESA (i.e., habitat modification is not necessarily considered take under the CESA).

Sections 3503 and 3503.5 of the California Fish and Game Code state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Destruction of active nests caused by removal of vegetation in which the nests are located is a typical violation of these codes. Violation of Section 3503.5 could also include failure of active raptor nests that results from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

### *California Fish and Game Code—Fully Protected Species*

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or

possession of fully protected species. DFG is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. DFG has informed non-Federal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

#### *California Fish and Game Code Section 1602—Streambed Alteration*

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by DFG under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying DFG:

> …*substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.*

A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. DFG's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

#### *California Fish and Game Code Sections 5900–5904, 5930–5948, 7261, and 7370—Fish Passage*

The California Fish and Game Code include the following provisions intended to protect fish passage:

- *Sections 5900–5904* prohibit constructing or maintaining any device or contrivance in any stream that prevents, impedes, or tends to prevent or impede the passing of fish upstream and downstream.

- *Sections 5930–5948* require DFG to inspect California's dams to ensure that dam owners are maintaining fish passage. DFG may require dam owners to install a suitable fishway if passage is impeded.

- *Section 7261* authorizes the California Fish and Game Commission to designate as "Heritage Trout Waters" any waters that provide anglers with an opportunity to catch native trout, consistent with the conservation of the California native trout. The McCloud River redband trout occurs in the McCloud River upstream from McCloud Dam.

- *Section 7370* prohibits taking or possessing for commercial purposes, buying or selling, or offering to buy or sell all or part of any sturgeon, including its eggs, unless the sturgeon was cultured, taken from another state, or taken pursuant to a sport fishing license. Green sturgeon occurs in the primary and extended study areas in the Sacramento River, tributaries, and Delta.

#### *Central Valley Flood Protection Board Encroachment Permit*

Under Title 23 of the California Code of Regulations, the Central Valley Flood Protection Board (formerly called the State of California Reclamation Board) issues encroachment permits to maintain the integrity and safety of flood control project levees and floodways that were constructed according to the flood control plans adopted by the board or the California Legislature.

#### *California Water Rights*

A water right is a legally granted and protected right to take possession of water and put it to beneficial use. As authorized by the California Water Code, the SWRCB allocates surface water rights and permits the diversion and use of water throughout the state. Through its Division of Water Rights, the SWRCB issues permits to divert water for new appropriations, change existing water rights, or store water for a certain length of time. The SWRCB attaches conditions to these permits to ensure that the water user prevents waste, conserves water, does not infringe on the rights of others, and puts the State's water resources to the most beneficial use in the best interest of the public.

#### *California Public Resources Code*

The California Public Resources Code, Section 5093.542, established through enactment of the California Wild and Scenic Rivers Act, as amended (Sections 5093.50 – 5093.70), aims to preserve designated rivers that possess extraordinary scenic, recreation, fishery, or wildlife values. With the act's passage, the California system protected segments of the Smith and Klamath river and their tributaries, and the Scott, Salmon, Trinity, Eel, Van Duzen, and American rivers. Segments of the McCloud River, Deer Creek, and Mill Creek were subsequently protected under the act in 1989 and 1995, respectively, although these segments were not formally designated as components of the State's Wild and Scenic Rivers System.

No dam, reservoir, diversion, or other water impoundment facility may be constructed on any river segment included in the State system. No water diversion facility may be constructed on any river segment included in the State system unless the Resources Secretary determines that the facility is needed to supply domestic water to local residents and that the facility will not adversely affect the river's free-flowing condition and natural character. In reference to the McCloud River, Section 5093.542(c) of the Public Resources Code states the following:

> *Except for participation by the [California] Department of Water Resources in studies involving the technical and economic feasibility of enlargement of Shasta Dam, no department or agency of the state shall assist or cooperate with, whether by loan, grant, license, or otherwise, any agency of the federal, state, or local government in the planning or construction of any dam, reservoir, diversion, or other water impoundment facility that could have an adverse effect on the free-flowing condition of the McCloud River, or on its wild trout fishery.*

Designation as a Wild and Scenic River does not affect existing water rights and facilities. Proposed changes in existing rights and facilities or applications for new water rights and facilities on designated segments are subject to the domestic-use restriction and the nondegradation standard. Designated segments are considered fully appropriated streams by the SWRCB.

The California Public Resources Code, Section 5093.542, shares similar criteria and definitions in regard to the purpose of protecting rivers with the National Wild and Scenic Rivers Act: identifying free-flowing rivers with extraordinary values suitable for protection, establishing a study process to include rivers in the system, and classifying river segments as either wild, scenic, or recreational based largely on the degree of development along each river segment included in the system. The primary purpose of both the Federal Wild and Scenic Rivers Act and State Public Resources Code is to prohibit new water impoundments on designated rivers.

The California Public Resources Code also contains several other sections relevant to the project. Some examples include Section 5096.225 (California Park and Recreational Facilities Act of 1984), Section 5094 (Federal Water Project Recreation Act), and the CWA.

#### *California Harbors and Navigation Code*

The California Harbors and Navigation Code details the jurisdiction of the California Department of Boating and Waterways, which is focused on the development of public access to waterways, the safety of vessels and boating facilities, and on-the-water safety.

#### *Porter-Cologne Water Quality Control Act*

Under the Porter-Cologne Water Quality Control Act, “waters of the State” fall under the jurisdiction of the appropriate regional water quality control board (in this case, the Central Valley Regional Water Quality Control Board). Under the act, the regional water quality control board must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet the regional water quality

control board's waste discharge requirements, which may be issued in addition to a water quality certification under Section 401 of the CWA.

### *California Land Conservation Act of 1965 (Williamson Act)*

The California Land Conservation Act of 1965, commonly known as the Williamson Act, is the principal method for encouraging preservation of agricultural lands in California. The Williamson Act enables local governments to enter into contracts with private landowners that restrict specific parcels of land to agricultural or related open space use for 10 years. In return, landowners receive property tax assessments that are based on farming and open space uses rather than full market value. Local governments receive an annual subvention (subsidy) of forgone property tax revenues from the State via the Open Space Subvention Act of 1971.

The Williamson Act empowers local governments to establish "agricultural preserves" consisting of lands devoted to agricultural uses and other compatible uses. When establishing such preserves, the locality may offer to owners of included agricultural land the opportunity to enter into annually renewable contracts that restrict the land for at least 10 years. In return, the landowner is guaranteed a relatively stable tax base, founded on the value of the land for agricultural/open space use only and unaffected by its development potential.

Cancelling a Williamson Act contract requires the landowner to undergo an extensive review and approval process and pay fees of up to 12.5 percent of the property value. The local jurisdiction approving the cancellation must find that the cancellation is consistent with the purpose of the California Land Conservation Act or is in the public interest. Several subfindings must be made to support either finding, as defined in Section 51282 of the California Government Code.

### *California Clean Air Act*

The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining the State ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards.

### *California Native Plant Protection Act*

In addition to the CESA, the California Native Plant Protection Act provides protection to endangered and "rare" plant species, subspecies, and varieties of wild native plants in California. The definitions of "endangered" and "rare" in the California Native Plant Protection Act closely parallel the CESA definitions of "endangered" and "threatened" plant species.

### *California Surface Mining and Reclamation Act*

The California Surface Mining and Reclamation Act of 1975 (SMARA) (Public Resources Code, Section 2710 et seq.) addresses surface mining. Activities subject to SMARA include but are not limited to mining of minerals, gravel,

and borrow material. SMARA requires mitigation to reduce adverse impacts on public health, property, and the environment. Because the SLWRI may obtain borrow material for project construction from sites not previously permitted, Reclamation must comply with SMARA. SMARA applies to an individual or entity that would disturb more than 1 acre or remove more than 1,000 cubic yards of material through surface mining activities, including the excavation of borrow pits for soil material. SMARA is implemented through ordinances for permitting developed by local government "lead agencies" that provide the regulatory framework under which local mining and reclamation activities are conducted. The State Mining and Geology Board reviews the local ordinances to ensure that they meet the procedures established by SMARA.

#### *California Native Plant Society Species Designations*

The California Native Plant Society is a statewide nonprofit organization that seeks to increase understanding of California's native flora and to preserve this rich resource for future generations. California Native Plant Society has developed and maintains lists of vascular plants of special concern in California. California Native Plant Society-listed species have no formal legal protection, but the values and importance of these lists are widely recognized.

#### *California Scenic Highway Program*

The Scenic Highways Element is an optional element of the *California Highway Designs Manual* authorized by Section 65303 of the Government Code. The stated intent (Streets and Highways Code, Section 260) of the California Scenic Highway Program is to protect and enhance California's natural scenic beauty and to protect the social and economic values provided by the state's scenic resources. Official designation requires a local jurisdiction to enact a scenic corridor protection program that protects and enhances scenic resources. A properly enforced program can do all of the following:

- Protect against encroachment of inappropriate land uses
- Mitigate uses that detract from scenic values by proper siting, landscaping, or screening
- Make development more compatible with the environment by requiring building siting, height, colors, and materials that are harmonious with the surroundings
- Regulate grading to cause minimal alteration of existing contours and to preserve important vegetative features along the highway

#### *State Lands Commission Land Use Lease*

The California State Lands Commission was given authority and responsibility to manage and protect the important natural and cultural resources on certain public lands within the state and the public's rights to access these lands. Two distinct types of public lands are under the commission's jurisdiction: sovereign

lands and school lands. Sovereign lands encompass approximately 4 million acres. These lands include the beds of California's naturally navigable rivers, lakes, and streams, and the state's tidal and submerged lands along the coastline, extending from the shoreline out to 3 miles offshore.

#### *State of California General Plan Guidelines*

The State of California has developed land-use compatibility guidelines for community-noise environments. The *State of California General Plan Guidelines*, published by the Governor's Office of Planning and Research (OPR 2003), provides guidance for the acceptability of projects within specific community-noise-equivalent-level/day-night noise level ($L_{dn}$) contours. With regard to this project, water recreational uses are considered to be acceptable in areas where exterior noise levels do not exceed 75 A-weighted decibels community-noise-equivalent-level/$L_{dn}$. Water recreational uses are normally unacceptable in areas exceeding 70 A-weighted decibel $L_{dn}$ and clearly unacceptable in excess of 80 A-weighted decibel $L_{dn}$. The guidelines also present adjustment factors that may be used to arrive at noise-acceptability standards that reflect the noise-control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise issues.

#### *California Department of Transportation*

Caltrans recommends a threshold of 0.2 inch per second peak particle velocity for normal residential buildings and 0.08 inch per second peak particle velocity for old or historically significant structures (Caltrans 2002). These standards are more stringent than the Federal standard established by the Committee of Hearing, Bio Acoustics, and Bio Mechanics, presented above under "Federal Transit Administration."

Caltrans is responsible for planning, designing, construction, operating, and maintaining all State-owned roadways in California. The *Caltrans Highway Designs Manual* establishes uniform policies and procedures to carry out Caltrans's highway design functions. The highway design criteria and policies in the manual provide a guide for applying standards in the design of projects and, rather than implementing enforceable regulations, present information and guidance.

### 3.4.3 Regional and Local

#### *Shasta County Air Quality Management District's Authority to Construct and Permit to Operate*

Facilities with equipment that may emit air pollution or would be used for controlling air pollution are subject to SCAQMD permit requirements. SCAQMD grants two types of permits: Authority to Construct, and Permit to Operate. An Authority to Construct permit must be obtained before building or installing a new emissions unit or modifying an existing emissions unit that

requires a permit. A Permit to Operate is issued after all construction is completed and the emission unit is ready for operation.

### *Other Local Permits and Requirements*

Several other local permits and requirements may apply to the proposed action. Shasta and Tehama counties and their public works departments will require compliance with local plans and ordinances, such as the county general plan, zoning ordinances, grading plan, and various use permits. Utility easements and various encroachments also may be required.

*This page left blank intentionally.*